TM 21-305

WAR DEPARTMENT TECHNICAL MANUAL

DRIVER'S MANUAL

WAR DEPARTMENT NOVEMBER 1944

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This manual supersedes TM 10–460, 6 May 1942, including C1, 18 March 1943.

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WAR DEPARTMENT *NOVEMBER 1944*

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BY ORDER OF THE SECRETARY OF WAR:

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CHAPTER 1

YOU AND YOUR VEHICLE

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1. YOU are a soldier-driver. You have an important and responsible job in operating a motor vehicle. The Army depends on its drivers for the mobility it needs to win a war.

Soldier-drivers have tough jobs because they drive under tough conditions. If you expect to do this type of driving without getting hurt and without causing injuries or damage, you must be not only qualified, but also dependable.

a. Your operator's permit. No one may operate a military motor vehicle who has not been issued an Army Motor Vehicle Operator's Permit.

You received your permit after you had passed an examination showing that you could operate and maintain your vehicle properly. But having passed the examination doesn't mean that you won't forget anything. This manual is *to help you* not to forget; to help you improve yourself as a driver. Study it. Keep it and your driver's permit with you whenever you drive. You may be required to show them at almost any time.

Marked on your permit are the classes of vehicles which you are authorized to drive. You are not allowed to drive any others.

You can keep your permit only so long as you drive safely and sensibly.

b. Your physical condition. You were proved to be physically fit when you entered the Army. However, even a qualified and ordinarily fit driver may become temporarily unfit because of fatigue, illness, injury or drink. If you are ever temporarily unfit, use sense—don't drive.

c. Alcohol and gasoline. "Alcohol and gasoline do not mix." In one quarter of the fatal motor vehicle accidents which were studied recently, one or more of the drivers had been drinking. A soldier may get in trouble for being intoxicated, but driving a motor vehicle while intoxicated is a far more serious offense.

d. Relief for drivers. When you have an assistant driver available, the easiest course is to have him take over if you become temporarily unfit. If you have none, ask your immediate superior for relief.

No matter what the cause of your temporary unfitness, be sure that you make those in authority realize that you are trying to protect life and property. If your immediate superior will not act, go higher, if necessary.

e. Pulling to side of road to rest. If you are operating outside of a march column, and have no assistant driver when you find yourself temporarily unfit, it is best to pull over to the right side of the road, well clear of all traffic, and rest until you are fit. If the delay will be long, you should communicate, if possible, with the offi-

cer under whose direction you are operating, or one of his assistants.

2. YOUR VEHICLE is a carefully engineered piece of machinery, easy to operate but easier to damage or destroy by carelessness and neglect. Even the "jeep" (¼-ton truck) is a high-powered machine. Treat it with respect.

3. YOU AND YOUR VEHICLE. As a soldier you pay particular attention to your equipment, clothes, and rifle or pistol. You take personal pride in keeping them clean, neat, orderly, and always ready to use. This same pride and desire for personal recognition should encourage you to take care of your assigned vehicle and its equipment intelligently and regularly. Carelessness or indifference in using and maintaining your vehicle leads to unnecessary work, delay, and a bad record as a soldier.

You are responsible for the safe operation and proper care of your vehicle. So be smart—don't let it down and it won't let you down.

CHAPTER 2

PROTECTING YOUR VEHICLE FROM ABUSE

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4. HELPFUL REMINDERS. You know how to drive well. However, here are some reminders that you'll find very useful in protecting your vehicle from abuse.

5. FAULTY STARTING may injure the vehicle. **a. Long-continued cranking of the engine** with the starting motor discharges the battery very rapidly and may shorten its life. You should not keep your foot on the starter for periods longer than 10 or 15 seconds.

By disengaging the clutch when you use the starter, you reduce the load on the starting motor and on the battery.

If the engine fails to start after being cranked several times, check the whole fuel line for leaks or stoppage and check the ignition system for loose connections or short circuits. Running down your battery won't start the engine, if the engine isn't getting fuel or spark.

b. Racing a cold engine. It takes time for the oil in a cold engine to circulate to all parts. If the engine is raced while cold, this underlubrication may cause serious damage to bearings, cylinders or pistons. Therefore, do not race a cold engine.

c. Using the choke. When you pull out the choke it gives more gasoline to the carburetor. To start your engine when it is cold, use the choke, but use it as little

as possible so as to avoid flooding the carburetor or diluting oil with gasoline. Whenever possible, start warming up your engine far enough ahead of time that you won't have to run your vehicle with the choke out. The necessary warm-up period may vary from half a minute to half an hour according to the weather.

6. GEARS. Shifting gears on a motor vehicle permits enough turning effort to be applied to the wheels for the load, grade, speed, or road conditions under which the vehicle is traveling. Allowing the engine to labor is a most effective means of burning out crankshaft bearings. Therefore, use sound judgment in selecting the proper gear. Always drive in a gear that will allow you to accelerate, if necessary.

It is exceedingly bad practice to wait until the last minute to shift gears. The experienced driver, anticipating the need for changing gears, shifts in time to keep his vehicle from losing momentum.

7. SELECTING SPEEDS WITH THE TRANSFER CASE. a. Two-speed transfer case. When the going is good, that is, on most hard pavements, leave the transfer case in high range and shift gears in the transmission only. Use the low range of the transfer case whenever driving off the road or when the going is tough—that is, for rough terrain, mud, sand, and steep grades—again shifting gears in the transmission only. *Caution:* Be sure to engage front axle drive before shifting into low range.

If your transfer case is in high range and you have to

shift to low range, slow down almost to a standstill, and shift by double clutching (par. 8d). You can shift from low range to high range at any usual speed.

b. Three-speed transfer case. A limited number of Army vehicles have three-speed transfer cases.

Use the low range (underdrive) for the same driving conditions as the low range in the two-speed transfer case, and shift to it in the same way.

Use the high range (direct drive) for fully loaded vehicles on hard surfaced roads in rolling country. You can shift to this range at any usual speed.

Use the overdrive range on hard surfaced roads, for lightly loaded vehicles in rolling country or for fully loaded vehicles in flat country. If you are an inexperienced driver, slow the vehicle almost to a standstill before you shift, but if you are expert, you may be able to do it at greater speed.

8. USING THE CLUTCH. a. Get the "clutch feel". The clutch provides a means of applying the engine power to the wheels smoothly and gradually.

Get the "feel" of your clutch; that is, know just where it starts to engage, how far the pedal travels until it is fully engaged, how much slack there is in the pedal, and how fast you should let the clutch in.

b. The clutch in starting. When starting to drive the vehicle, let the pedal come back to the point of engagement and then engage the clutch gradually, at the same time depressing the accelerator at a rate sufficient to maintain the speed of the engine.

c. The clutch and the gearshift. When you shift from one gear to another, engage the clutch smoothly—though more rapidly than when starting, because in this case the clutch does not have to slip (as it does when starting) if you have shifted properly.

d. Double clutching. Good drivers often use double clutching to engage the gears smoothly by synchronizing the speeds of the gears before engagement. Shifting to a lower speed by double clutching is done as follows: (1) Remove foot from accelerator; (2) depress the clutch pedal; (3) move the gearshift lever to neutral position; (4) release the clutch and at the same time (5) depress the accelerator until the engine speeds up somewhat; (6) depress the clutch pedal; (7) move the gearshift lever to the next lower speed; (8) release the clutch pedal and at the same time (9) depress the accelerator to maintain the speed of the engine as the load is again connected to it by the engagement of the clutch. (See fig. 1.)

The procedure is the same for shifting to a higher speed, except that the engine is not accelerated while the gears are in neutral.

Double clutching sounds rather complicated but it becomes almost automatic with practice.

e. Don't "ride" the clutch. Keep your foot off the clutch except when starting, stopping, or shifting. Even a slight continued pressure on the clutch pedal wears out the facings and throwout bearing of the clutch. For the same reason, when stopped on a hill, never slip your clutch to prevent your vehicle from rolling back. Use your brakes instead.

9. MAXIMUM AND MINIMUM SPEEDS. Your vehicle is not designed to operate above a specified maximum speed, or below a specified minimum speed, in each gear.

a. Maximum speeds. The caution plate (fig. 2) shows maximum speeds for each gear. (These are given as the maximum engine rpm for any gear if the vehicle is equipped with a tachometer.)

Excessive speeds will damage the engine. These can occur when your vehicle is coasting downhill in gear or when the governor is not working properly. Furthermore, operating at maximum speed or "against the governor" is risky because you have no reserve speed if you suddenly need to accelerate to avoid an accident. So, keep *below* the maximum shown for each gear.

b. Minimum speeds. Operating at too low an engine speed, or allowing the engine to "labor," overloads the engine and will damage it. Shift gears before the engine starts to labor, and save the engine.

10. BRAKING. The purpose of the brakes is to reduce speed, stop the vehicle, and hold it in place when stopped.

a. Use engine as brake. (1) Whenever you apply brakes, heat is generated and some of the lining is worn away. If you hold them on continuously, the brake lining may be burned. Save your brakes by using your engine to slow your vehicle down, and your brakes merely to assist the engine. Think ahead. Begin to slow down early by taking your foot off the accelerator while *leaving the clutch engaged.* Then apply the brakes firmly but gradually so as to stop quickly but without

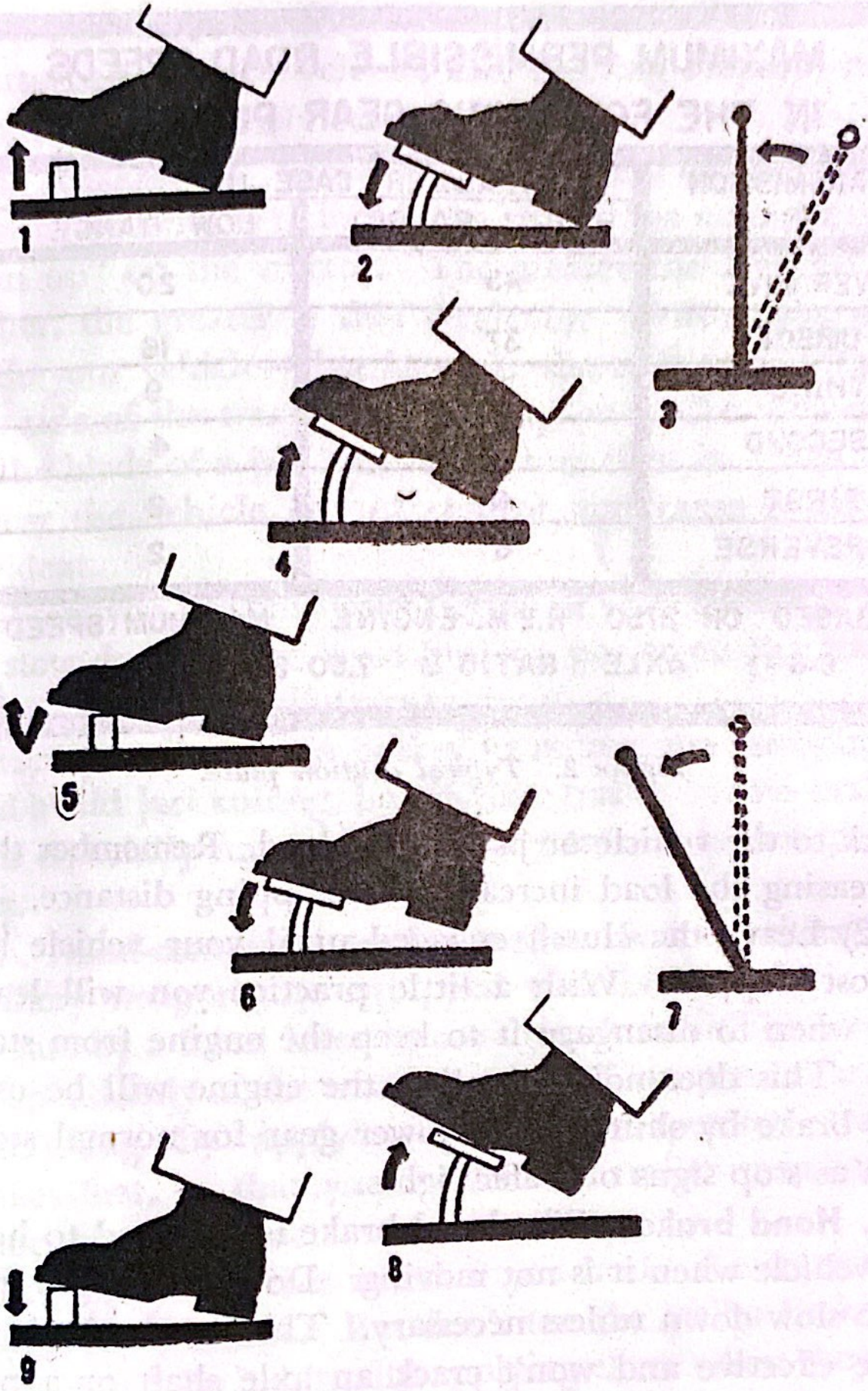

Figure 1. Double clutching.

MAXIMUM PERMISSIBLE ROAD SPEEDS IN THE FOLLOWING GEAR POSITIONS

TRANSMISSION IN	TRANSFER CASE IN	
	HIGH RANGE	LOW RANGE
OVERDRIVE	45	20
DIRECT	37	16
THIRD	20	9
SECOND	10	4
FIRST	6	2
REVERSE	6	2

BASED ON 2750 R.P.M. ENGINE MAXIMUM SPEED
6.6 - 1 AXLE RATIO & 7.50-20 TIRES

Figure 2. Typical caution plate.

shock to the vehicle or jarring the load. Remember that increasing the load increases the stopping distance.

(2) Leave the clutch engaged until your vehicle has almost stopped. With a little practice you will learn just when to disengage it to keep the engine from stalling. This does not mean that the engine will be used as a brake by shifting to a lower gear for normal stops such as stop signs or traffic lights.

b. Hand brake. The hand brake is designed to hold the vehicle when it is not moving. Do not use it to stop or to slow down unless necessary. The foot brake is far more effective and won't crack an axle shaft or a propeller shaft.

11. BRAKING A TRAILER. If a trailer or artillery weapon is attached to your vehicle, safe braking requires additional care, especially on down grades.

a. Jackknifing. When the momentum of your tractor (towing vehicle) is reduced, the trailer has a tendency to "run up" on the tractor. The greater the load on the trailer, the greater is that tendency. This might jackknife your vehicle—that is, cause the trailer to swing to one side of the tractor and fold up on it like the action of the blade of a jackknife when you close it. This may throw the vehicle out of control and cause a serious accident.

When you use only your engine or your tractor brakes to slow down, there is no braking power on the trailer wheels, and jackknifing may occur.

Heavy trailers have brakes to reduce the momentum and avoid jackknifing, but if your trailer has no brakes, it is especially important to apply tractor brakes gradually.

b. Hand-controlled trailer brake. Some trailers and artillery weapons are equipped with brakes which you operate by a hand lever in the driver's cab. These work independently of the tractor brakes. Thus you can avoid jackknifing by applying your hand-operated trailer brakes first, so that you reduce the trailer momentum sooner than the tractor momentum.

You should do this whether you brake the tractor by engine or by brakes. But don't use the trailer brakes as an "anchor" by habitually applying them when they are not needed.

c. Automatically controlled trailer brakes. On many tractor-trailer combinations the brakes are so designed that the tractor and trailer brakes operate together. The tractor brakes are mechanically prevented from operating ahead of those on the trailer. This will automatically avoid jackknifing when you use the brakes, but not when you use only the engine as a brake. You must always use the brakes at least enough to keep your trailer in control.

d. Know your tractor-trailer combination. From the above you will realize that even an experienced driver must know more than just how his trailer brakes work. He must get their "feel" before he can handle a trailer safely. To be safe, be sure *you* know your trailer.

12. ATTACHING A TRAILER. Trailed loads should be attached to the tractor by a lunette (on the trailed load) placed in a pintle hook (on the tractor). Make sure that the pintle latch is closed and secured before you move the trailed load. (See fig. 3.)

13. BACKING A TRAILER requires knowledge of your tractor-trailer combination, practice and skill. When you first try to back with a trailed load, take it easy. Be sure you have plenty of room.

In backing a trailer to the right, the driver first manipulates his vehicle as though beginning a turn to the left. This action starts the trailer moving toward the driver's right. In backing a trailer to the left, the driver first manipulates his vehicle as though beginning a turn to

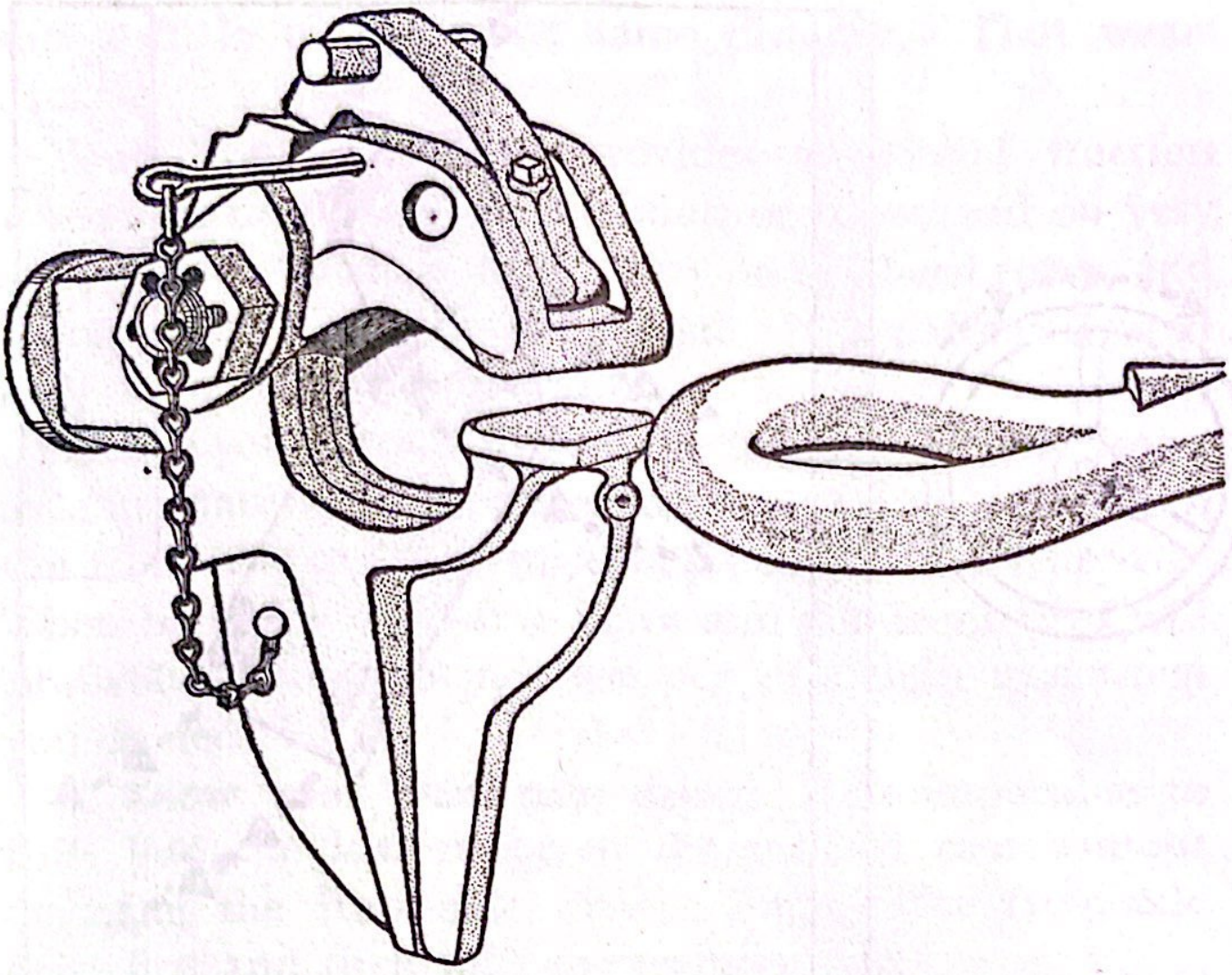

Figure 3. Pintle hook and lunette.

the right. This action starts the trailer moving toward the left. Thus a skillful driver is able to back a towed load into a narrow space. (See fig. 4.)

Until you are fully competent and fully familiar with your own particular combination, always have another man watch when you back it to warn you before the trailer becomes so cramped that it might cause damage. The 1-ton trailer requires particular skill—be careful with it.

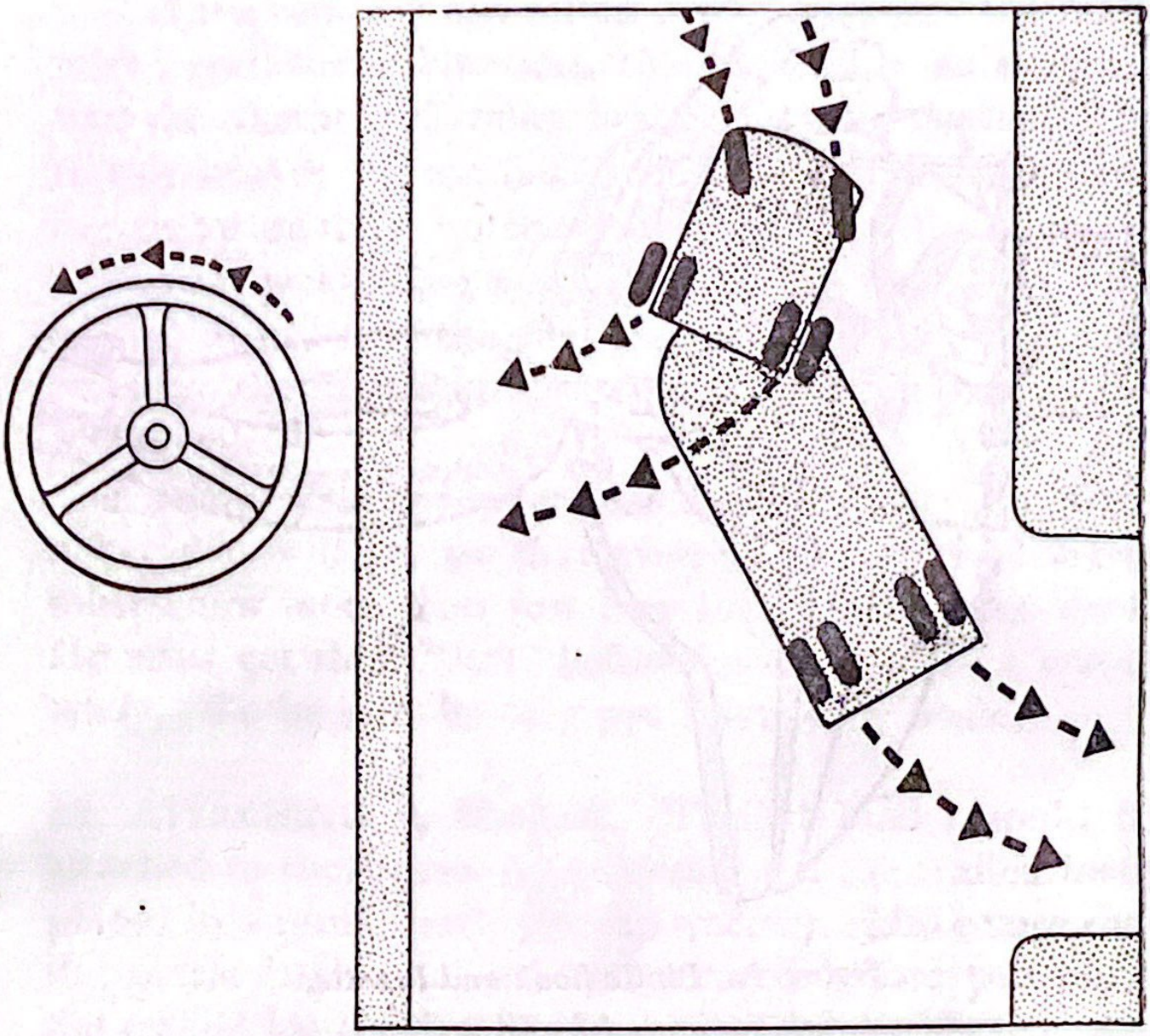

Figure 4. Backing a semitrailer.

14. FRONT-AXLE DRIVE. a. Use front-axle drive only as needed. When a front-axle drive is engaged, the average speed of the front pair of wheels is the same as the average speed of each pair driven by the rear-axle drive. Therefore, if the front or rear tires are worn or underinflated, their circumference is less than the circumference of the others, and one pair or the other must

You can usually *disengage* the front-axle drive readily while operating the vehicle. If you still have difficulty, run the vehicle over a rough surface or bump on the road or run the right tires on a rough shoulder of the road until you complete the shift. This should make it easy.

15. SAFE OPERATION ON HILLS. It is risky to change gears while climbing a hill. Therefore, the safest procedure is to select the proper gear before starting up. However, should it be necessary to go to a still lower gear, make the shift before the engine slows down to a stalling point.

Do not depend on your brakes alone on a steep hill. If the road is slippery, and your vehicle starts to slide with the brakes set, you will lose control because you cannot steer with the wheels locked. By using a lower gear and leaving the clutch engaged causing the driving wheels to turn the engine, you will have the effect of brakes, yet the wheels revolve freely enough to permit steering control.

a. Uphill. If you stall the engine while climbing a steep hill and must back down, apply the foot brake, set the hand brake, disengage the clutch, and shift quickly into reverse.

If the vehicle does not slide or roll, start the engine while the clutch is still disengaged and engage the clutch while releasing the brakes.

If the vehicle slides or rolls while the clutch is disengaged, reengage it immediately after shifting into

wheels. The result is effective and safe braking.

If the braking power of your engine isn't enough to keep your vehicle at a safe speed, use the foot brake also.

c. Be kind to your brakes. In using the foot brakes on hills you should take the following precautions to prevent skidding, or overheated brakes:

(1) Apply the brakes firmly but not abruptly. Abrupt application with full force may lock the wheels and cause your vehicle to slip or skid out of control.

(2) Apply the brakes at intervals, only as you need them.

d. Coasting downhill with the clutch out or with the transmission in neutral, or attempting to change gears after you have started downhill is dangerous. A vehicle gains momentum rapidly on down grades. If the transmission is in neutral, the speed may be too great to mesh the gears. The vehicle may then get out of control, become a runaway, and not only spoil your reputation as a good driver, but endanger life and property. Do not coast downhill with the clutch disengaged.

Never step on the starter while the vehicle is rolling backward and gears are engaged, even though you are holding the clutch pedal down. Go into neutral before using the starter.

e. Runaway vehicles. If the braking effects of both the engine and the brakes fail to hold your vehicle and it starts to run out of control down a hill, the last resort is to ditch the vehicle, running it off the road against a bank if possible, at a sharp angle. This must be done promptly, before the runaway vehicle has gained too

much speed. By prompt ditching in such an emergency, you may prevent a much more serious accident.

f. Look out for excessive "revs" while going downhill. Your engine probably has a governor that limits the rpm under ordinary circumstances. But when you are going down a hill and using your engine as a brake, the governor doesn't help.

What happens is this: The wheels are connected with the engine. Thus the momentum of your vehicle causes the engine to turn over more rapidly, and the lower the gear you are using, the faster your engine is forced to turn over in proportion to the speed of your vehicle.

Hence, when you are driving downhill in a low gear, if you let your vehicle roll too fast, the engine may easily be turned over so rapidly that it can't stand the strain. Bearings may burn out. Parts may fly apart. *This sad fate has happened to many an Army vehicle—with a poor driver.*

Avoid that. When going down a hill, notice what gear is engaged. Read the caution plate on your panel. Use the foot brakes, as needed, to *keep your vehicle down to or below the maximum speed shown for that gear.*

16. DRIVING TIPS. Good driving demands that you keep the following in mind:

a. Shut off the engine. Idling the engine for long periods when the vehicle is not in motion wastes fuel. It is contrary to Army regulations. Never leave your vehicle unattended with the engine running.

b. It's not a ship. If you must drive through water,

go slowly and steadily, so that you won't splash water over the engine and stall it.

c. It's not a tank. When one vehicle pushes another, the view of the man who controls the forward movement is obstructed by the vehicle head. That may cause accidents.

It is safer to pull vehicles than push them. Push only when no other practicable course is open.

Except in an emergency, do not use your vehicle to tow another unless both are provided with suitable and safe apparatus for towing.

d. Protect the tires. Turn the front wheels as little as possible when your vehicle is standing still, to avoid wearing the tires and straining the steering mechanism.

Scraping curbs or tree stumps will damage the sidewalls, which are the weakest parts of the tires.

e. Adjustments. Driving a vehicle that is out of adjustment will only cause more damage. Look out for signs of trouble. For example, a thumping in the steering gear may indicate that it is loose. If a correct adjustment is not made soon, the steering gear teeth may become pitted or broken off, ruining the steering assembly. Such a condition can put the entire vehicle out of service. Your preventive maintenance services (see ch. 7) outline the way to keep your vehicle in good order.

CHAPTER 3

GETTING THERE SAFELY

Section I. WHENEVER YOU ARE DRIVING

17. MOTOR VEHICLE ACCIDENTS WEAKEN OUR WAR EFFORT. Thirty-four thousand five hundred people were killed in motor vehicle accidents in the United States in 1940. That is more than the number killed by air raids on England in the whole first year of the second World War, and is equal to more than two whole divisions of troops. (See fig. 5.)

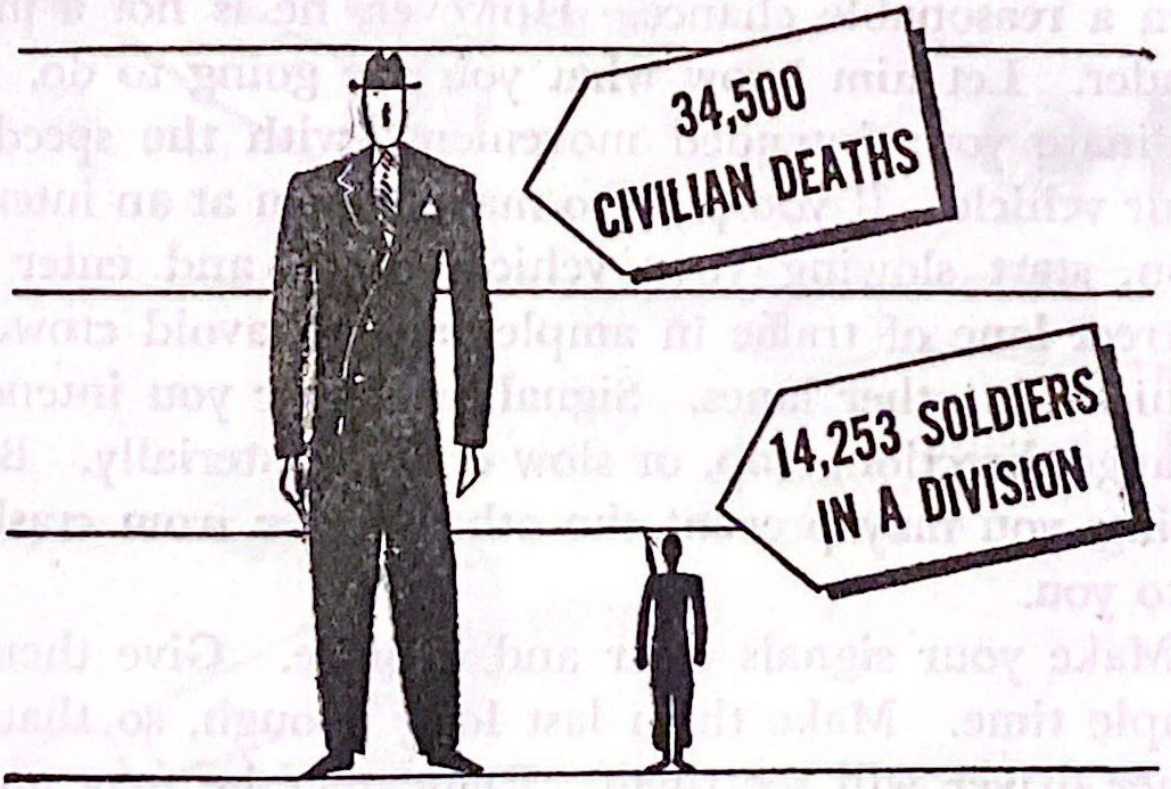

Figure 5. Accident casualties.

One and a half million people were injured in all kinds of motor vehicle accidents during the same year. That is equal to several field armies.

A recent study of the records of one maintenance unit of the Army showed that more than 80 percent of the vehicles being repaired were out of service because of accidents.

So, in addition to taking care of your own skin, you can see that keeping motor vehicle accidents from reducing our national effectiveness is a real job.

Only you—the individual soldier-driver—can do the trick for the Army.

18. CLEAR SIGNALS ARE ESSENTIAL TO SAFETY. **a.** The average driver doesn't want to smash his vehicle or yours. He will be careful to avoid a crash if you give him a reasonable chance. However, he is not a mind reader. Let him know what you are going to do. Coordinate your intended movements with the speed of your vehicle. If you plan to make a turn at an intersection, start slowing your vehicle down and enter the correct lane of traffic in ample time to avoid crowding vehicles in other lanes. Signal whenever you intend to change direction, stop, or slow down, materially. By so doing, you may prevent the other driver from crashing into you.

Make your signals clear and definite. Give them in ample time. Make them last long enough, so that the other driver will see them. Remember he may not be looking all the time.

b. The follo
intentions. Th
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you avoid troul

(1) *Right tu*
above horizonta

(2) *Left turn*

(3) *Slow or s*
below horizont

(4) *Passing.*
vehicle except
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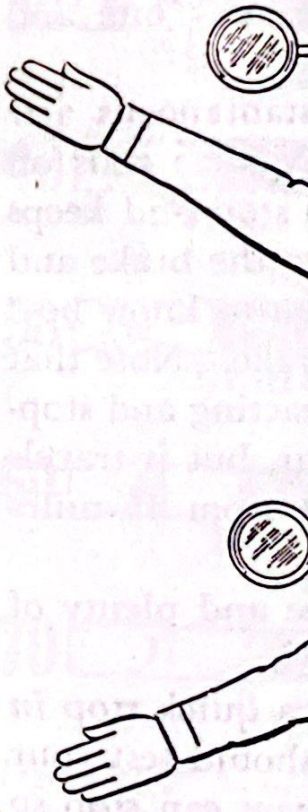


b. The following signals will clearly indicate your intentions. They are widely used. Therefore they are sure to be understood by the other fellow and will help you avoid trouble. (See fig. 6.)

(1) *Right turn.* Extend left arm at an angle of 45° above horizontal.

(2) *Left turn.* Extend left arm straight out.

(3) *Slow or stop.* Extend left arm at an angle of 45° below horizontal.

(4) *Passing.* Sound your horn before passing another vehicle except when darkness makes it possible to warn by flicking your headlight beams.

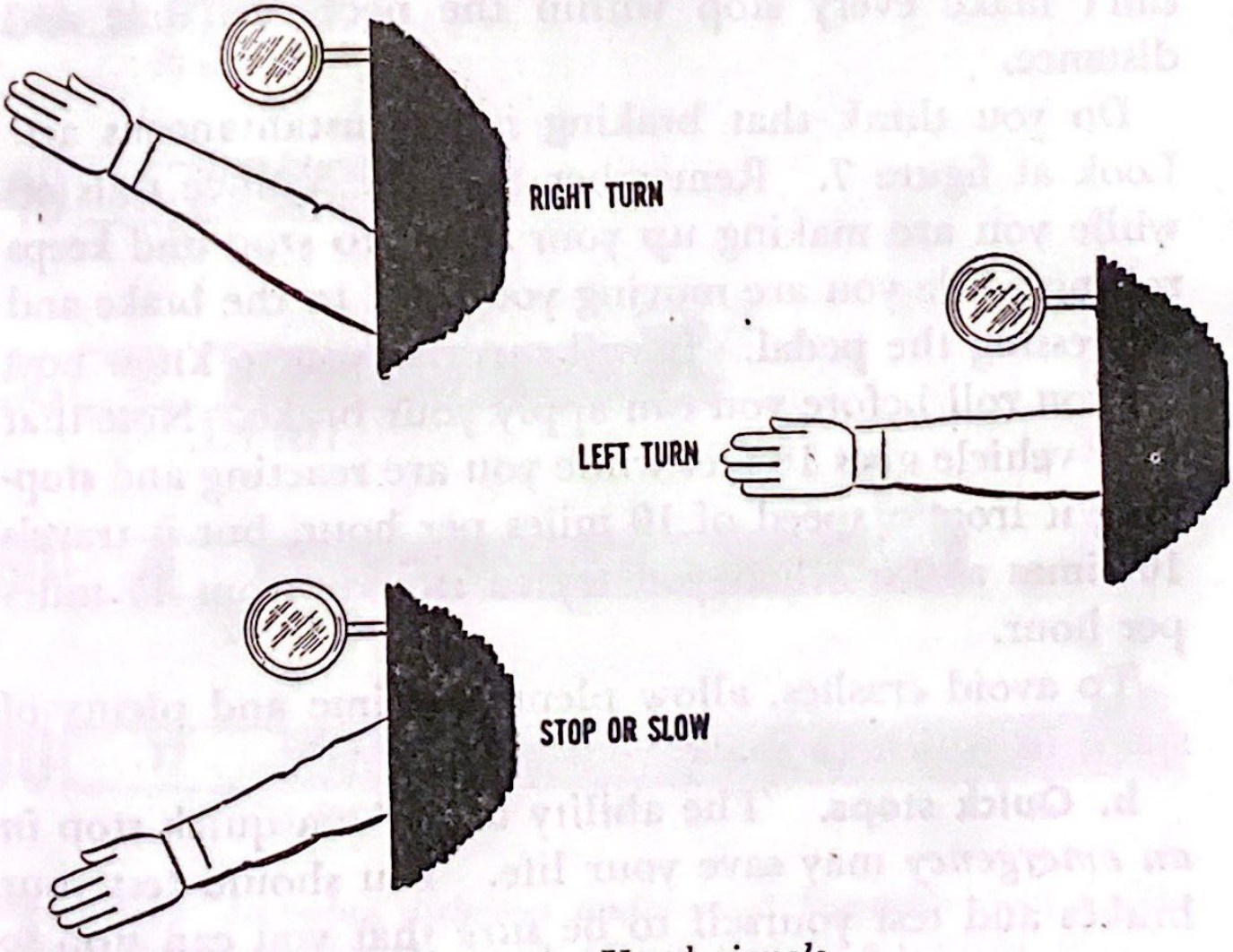


Figure 6. Hand signals.

19. SIGNALS DO NOT RELIEVE YOU OF RESPONSIBILITY. If there is a collision, the crash will be just as bad, the damage just as great, and the injuries just as painful, whether you have signaled or not. So even if you have signaled, watch the other fellow, and play safe. He may not have seen your signal.

20. SLOWING DOWN AND STOPPING. a. Safety. Can you imagine how it would feel to be riding in a fast-moving motor vehicle that could not be slowed or stopped? Sooner or later you would end up in a crash. That is certain! Just as certainly, you'll have a crash even though your vehicle has excellent brakes, if you can't make every stop within the necessary time and distance.

Do you think that braking is an instantaneous act? Look at figure 7. Remember that the vehicle rolls on while you are making up your mind to stop and keeps rolling while you are moving your foot to the brake and depressing the pedal. It will surprise you to know how far you roll before you can apply your brake. Note that your vehicle goes 18 feet while you are reacting and stopping it from a speed of 10 miles per hour, but it travels 10 times as far when you try to stop it from 45 miles per hour.

To avoid crashes, allow plenty of time and plenty of space in which to make your stop.

b. Quick stops. The ability to make a quick stop *in an emergency* may save your life. You should test your brakes and test yourself to be *sure* that you can stop so

quickly that you almost "stand her on her nose."

But the driver who makes sudden stops a general practice is a poor driver. He is just asking for an accident.

The driver behind you may not be as quick as you are.

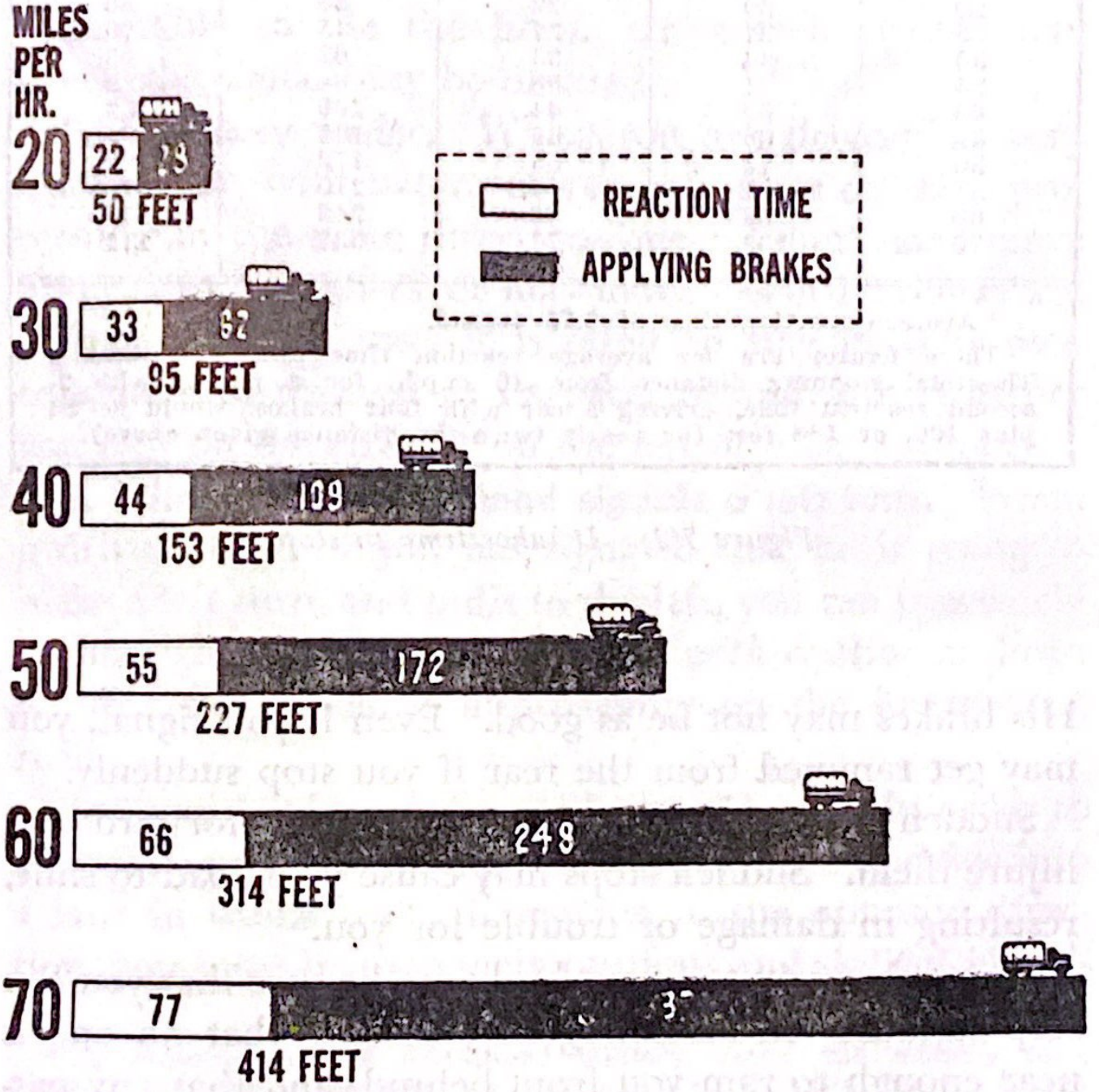


Figure 7(1). Stopping distances under most favorable road conditions, based on effective brakes and driving on a straight, level, smooth, hard-surface, dry highway.

If you go this many MILES PER HOUR	You are traveling this many FEET EACH SECOND	You will travel this many FEET BEFORE YOU CAN GET YOUR FOOT ON THE BRAKE*	You will travel this many MORE FEET BEFORE YOUR BRAKES CAN STOP YOU	So you will travel a total of this many FEET BEFORE YOU CAN STOP
10	15	11	7	18
15	22	16	15	31
20	30	22	28	50
25	37	27	43	70
30	44	33	62	95
35	51	38	84	122
40	59	44	109	153
45	66	49	135	184
50	73	55	172	227
55	81	60	210	270
60	88	66	248	314
70	103	77	337	414

* Average reaction time of 0.75 second.

These figures are for average reaction time and good brakes. The total stopping distance from 30 m.p.h. for a person with 2-second reaction time, driving a car with four brakes, would be 88 plus 100, or 188 feet (or nearly twice the distance given above).

Figure 7(2). It takes time to stop.

His brakes may not be as good. Even if you signal, you may get rammed from the rear if you stop suddenly.

Sudden stops may also throw passengers forward and injure them. Sudden stops may cause your load to shift, resulting in damage or trouble for you.

Even when you test your brakes to be sure that you *can* stop suddenly in an emergency, be sure that no one is near enough to ram you from behind, and that any passengers or load are "set" and won't be thrown around. Always look in the mirror before slowing or stopping.

21. SAFETY IN OVERTAKING AND PASSING. a. Normal method of passing. The accepted rules of the road require you to pass on the left of a vehicle which you are overtaking. Signal by day with your horn, and by night by flicking your lights. However, in heavy traffic where cars are constantly passing and drivers constantly alert, or when the military situation requires silence, it may be undesirable to use the horn. In a well lighted city street, the signal may be omitted.

b. In heavy traffic. When you are driving in very heavy traffic, with two or more continuous columns proceeding in the same direction, one column* may move faster than the others, or may move when the others are halted. In such case, it is safest to stay in your own column, and proceed at its pace, regardless of whether you pass on the right or on the left of other columns.

c. When the driver ahead signals a left turn. When a driver ahead of you has signaled that he is going to make a left turn, and pulls to the left, you can pass safely on his right, *provided you proceed with caution* and can see that no vehicle is approaching on the intersecting road.

d. There is always danger in passing. If in order to overtake and pass another vehicle, you have to drive into a lane in which traffic is moving in the opposite direction, you must be extremely cautious and skillful in esti-

* To conform to long established military usage, the military term "column" is used to describe a formation in which units are one behind the other, instead of the civilian term "line," which the Army reserves for a formation in which the different elements are abreast of each other. Similarly, "distance" is used to express space between units in column, while "interval" is used to express space between units in line (FM 22–5).

mating distances and judging speeds. A mistake in judgment may cause a head-on collision with another vehicle. (See fig. 8.) Head-on collisions are no joke. Use care and avoid them.

Be sure that you can see, that you have plenty of room and plenty of time to get by, before you try to overtake and pass another vehicle.

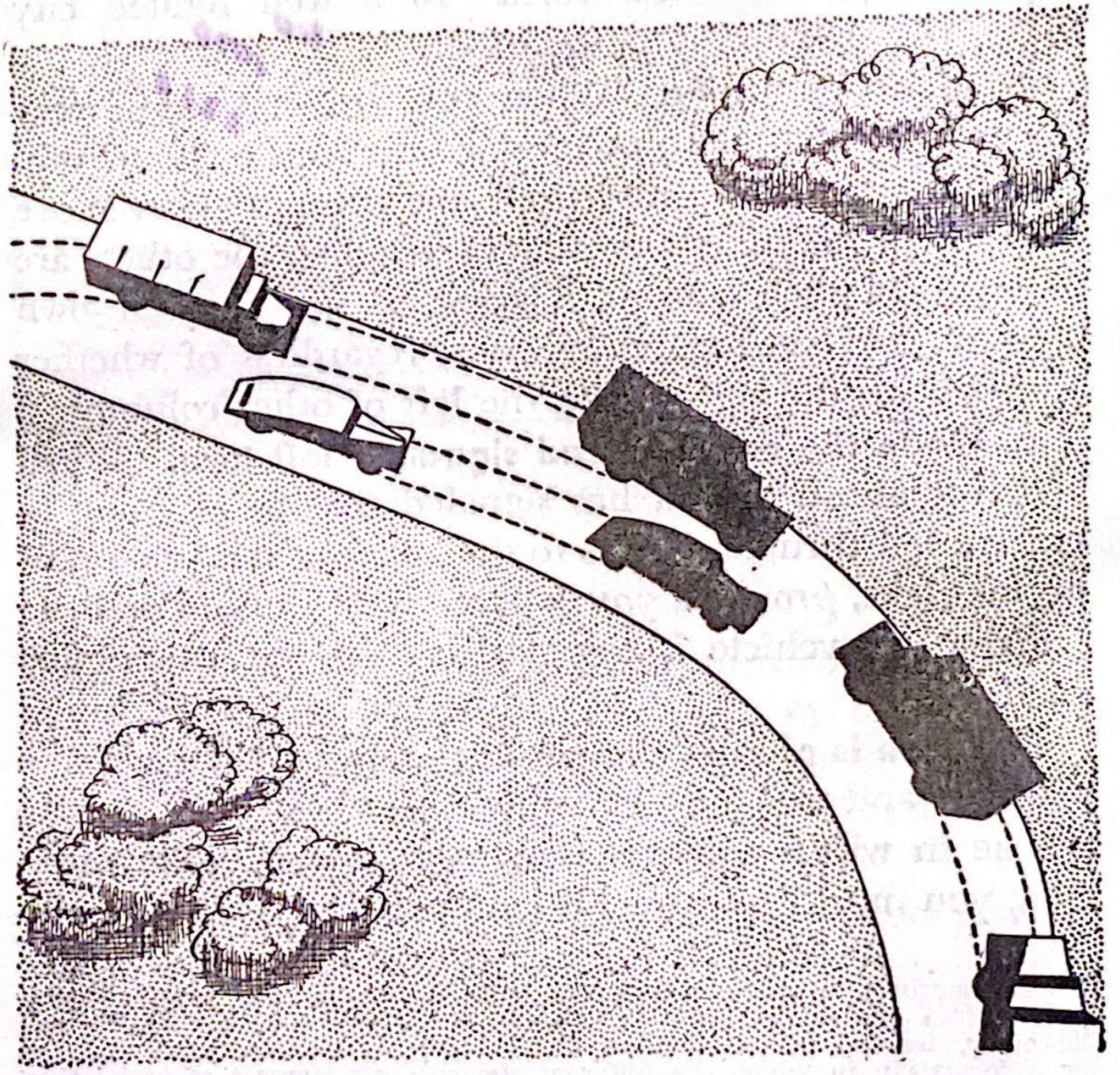


Figure 8. Don't pass on blind curves.

e. You're blind when you pass at intersections. When you overtake and correctly pass another vehicle on its left, the vehicle which you are passing cuts off your sight toward the right. (See fig. 9.) Hence, to avoid collisions, don't pass where someone may shoot out of a blind space at your right. That means don't pass at intersections.

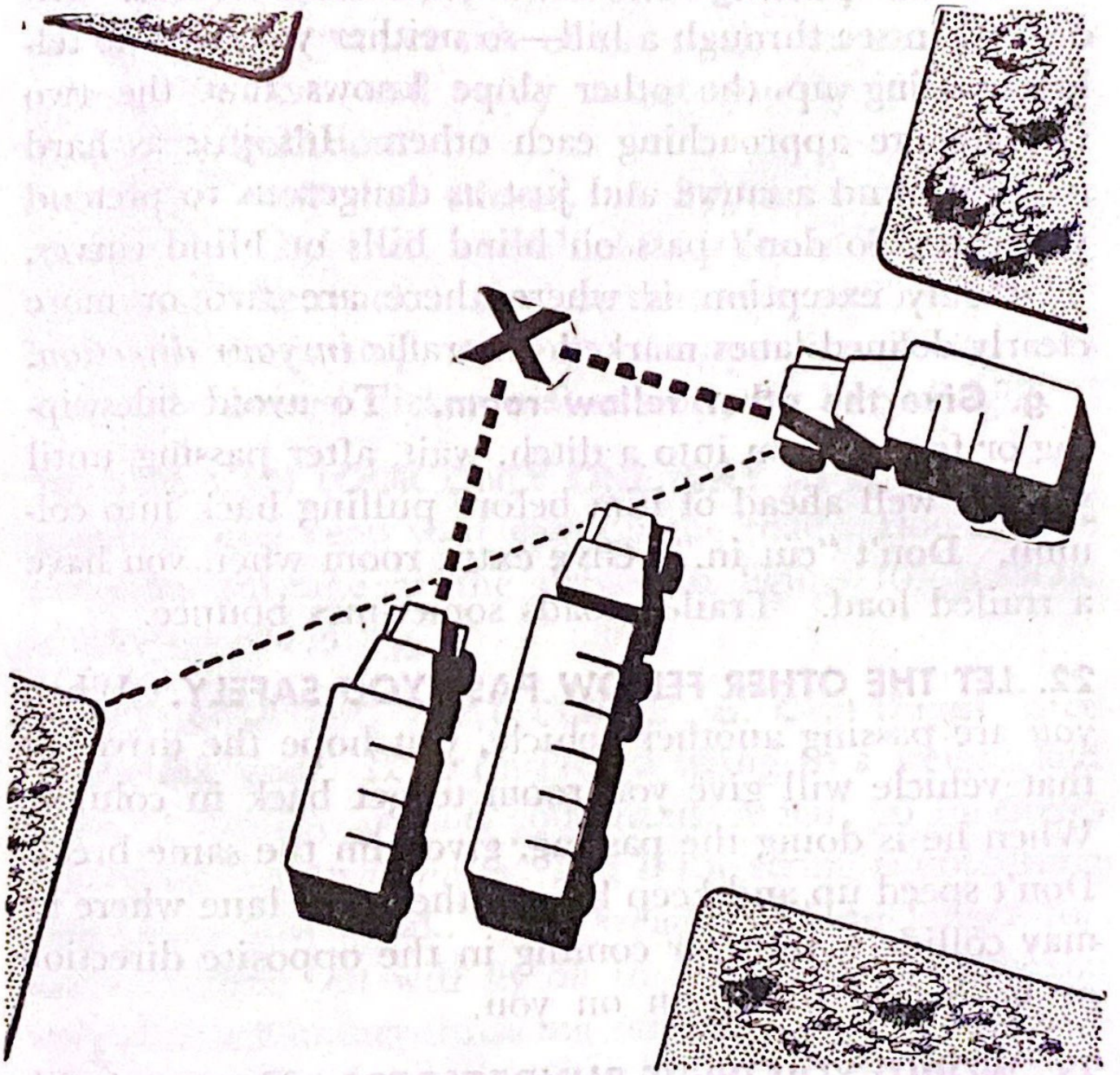


Figure 9. Don't pass at intersections.

When a driver signals and slows or stops his vehicle for a left turn, and you pass it on the right, the vehicle which you are passing now creates a blind space at your left. The only way to be safe is to slow down enough so that you can "stop on a dime" if necessary. Pass only after you are sure nothing is coming on the cross road.

f. Avoid passing on blind hills and curves. No driver can see through a hill—so neither you nor the fellow coming up the other slope knows that the two vehicles are approaching each other. It's just as hard to see around a curve and just as dangerous to pretend you can. So don't pass on blind hills or blind curves. The only exception is where there are two or more clearly defined lanes marked for traffic *in your direction.*

g. Give the other fellow room. To avoid sideswiping or forcing him into a ditch, wait, after passing, until you get well ahead of him before pulling back into column. Don't "cut in." Give extra room when you have a trailed load. Trailed loads sometimes bounce.

22. LET THE OTHER FELLOW PASS YOU SAFELY. When *you* are passing another vehicle, you hope the driver of that vehicle will give you room to get back in column. When he is doing the passing, give him the same break. Don't speed up and keep him in the other lane where he may collide with a car coming in the opposite direction or be forced to cut in on you.

23. WOULD YOU DRIVE BLINDFOLDED? No man in his right senses would drive blindfolded. Yet you are just

about as bad off when your vision is cut off by hills, buildings, trees, signs, fences, or other obstructions. Even a windshield sticker may be dangerous.

a. Keep your eyes open. Unfortunately you can't avoid blind places. They are all over the country. Suppose someone suddenly comes from behind that obstruction to your line of sight. Can you stop?

At least you can be prepared. You can be sure that you are on the proper side of the road; you can proceed cautiously, alert, and ready to act quickly if necessary to avoid a collision.

b. Scrape off that sticker. A 2½-ton truck may be hidden by a 2½-inch windshield sticker in your line of sight when the truck is so close that even at 25 miles per hour you can't stop in time. Scrape that sticker off. Put any required sticker well out of your line of sight.

24. YOU CAN LOOK ONLY ONE WAY AT A TIME. To avoid crashes, keep your eyes on the road. Don't make the same mistake as the driver in figure 10. LOOK where you are going.

25. NEGOTIATING THAT CURVE. a. Centrifugal force is fighting you. If you attach a string to a weight and swing it rapidly around your head, it will go in circles *as long as the string holds.* But if the string is not strong enough, it will break. The weight will no longer follow the curve but will fly off in a straight line like the weight in a hammer-throwing contest. That is an example of centrifugal force.

Similarly, when your vehicle first starts to take a curve,

its forward momentum tries to make it continue in a straight line. As it turns, centrifugal force tries to make it fly off the curve like the weight from the string. (See fig. 11.) But, like the string, the friction of your tires on

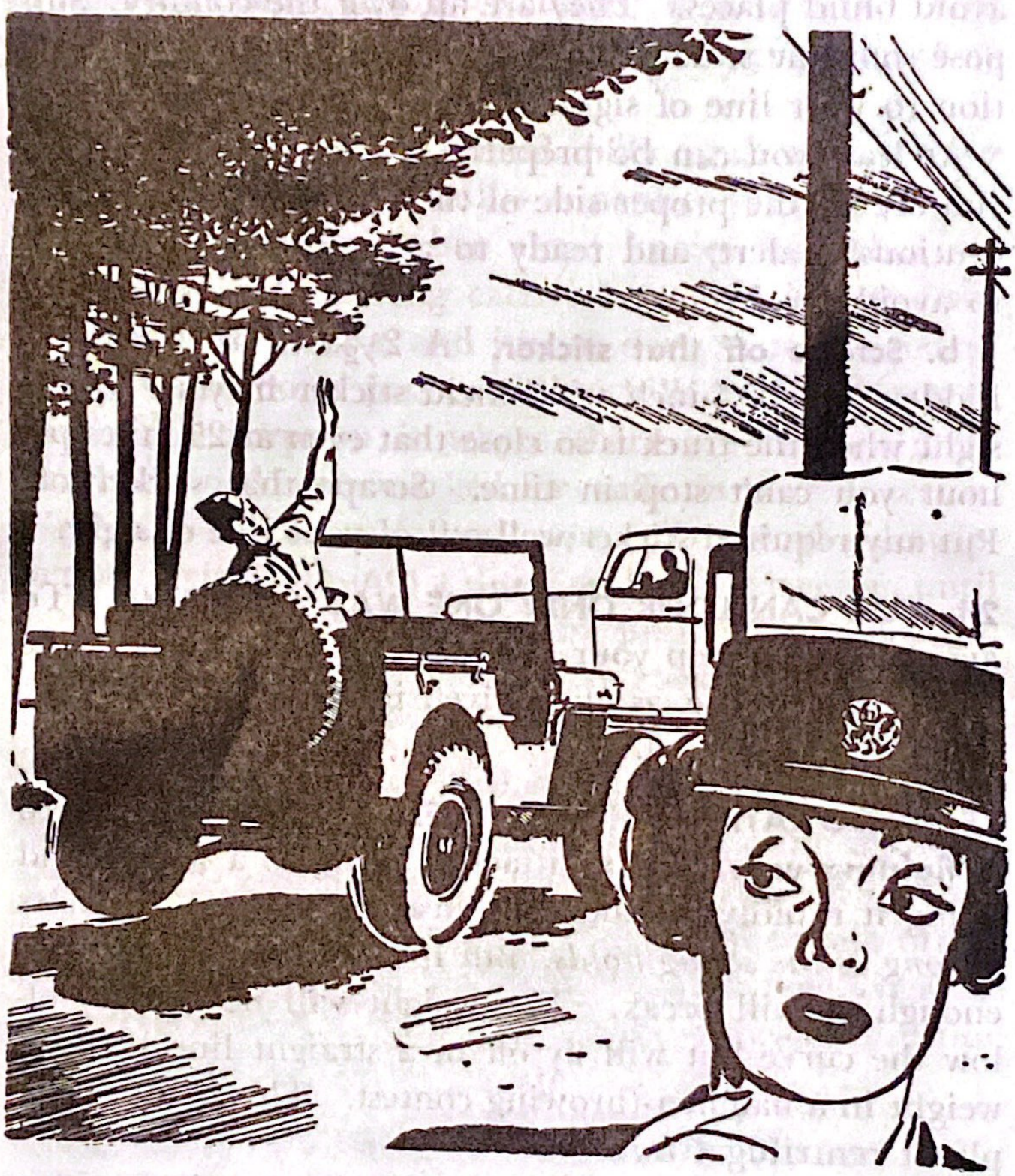


Figure 10. Keep your eyes on the road.

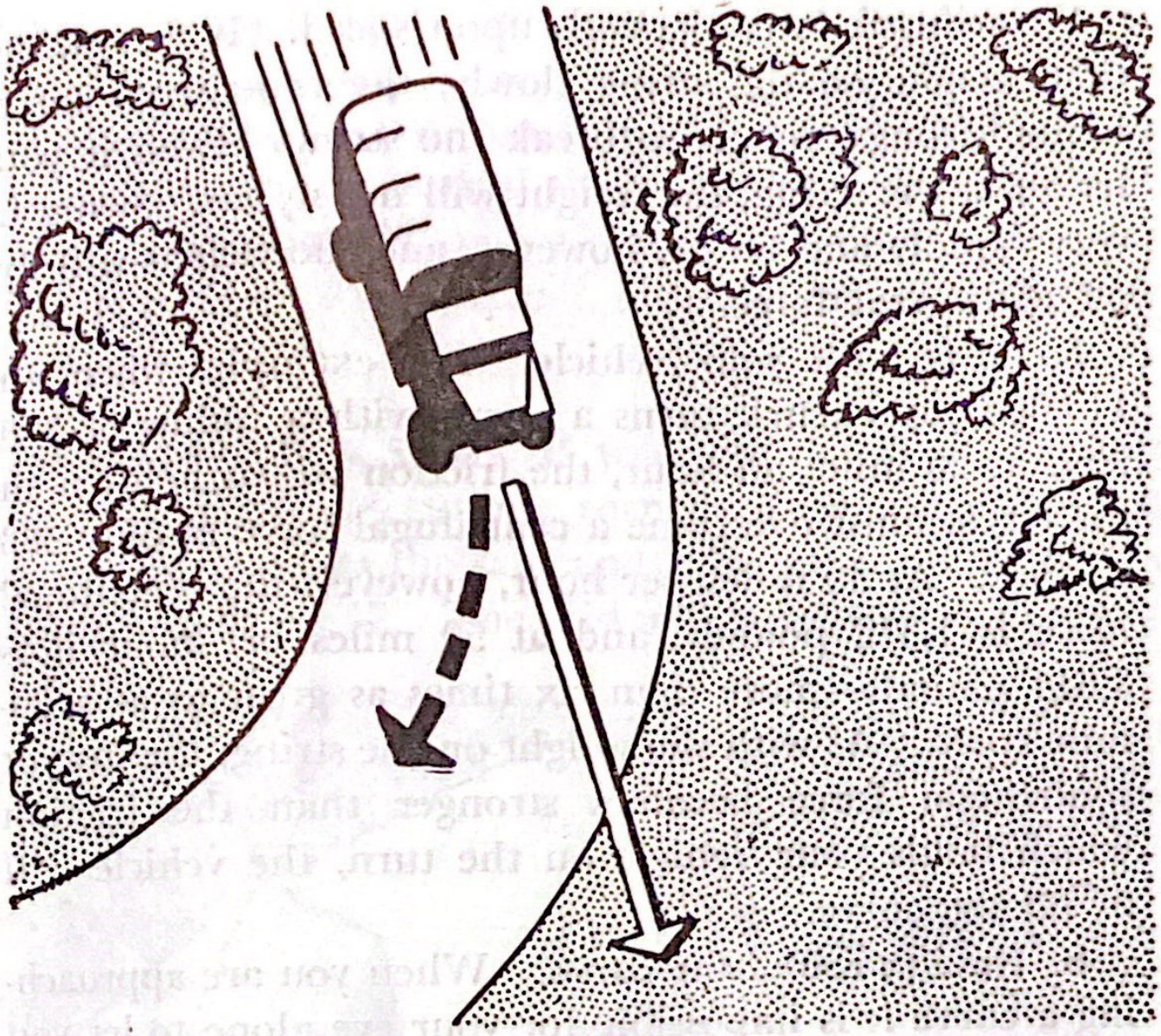


Figure 11. Momentum tries to carry you ahead in a straight line.

the ground holds your vehicle and makes it go forward around the curve. If the friction is strong enough, the vehicle will stay on the curve (unless its load is top heavy, in which case it may turn over). But if the centrifugal force is stronger than the friction, your vehicle will fly off the road like the weight when the string breaks.

Centrifugal force depends upon speed. If you swing that weight on the string slowly, the centrifugal force is not strong enough to break the string. Even if you let go of the string, the weight will not fly far. Swing it very rapidly and let go, however, and the weight will fly off with great force.

So it is with your vehicle. For example, when an 11,000-pound truck turns a curve with a radius of 500 feet, at 20 miles an hour, the friction which holds it in the circle must overcome a centrifugal force of only 583 pounds. At 30 miles per hour, however, the centrifugal force is 1,312 pounds, and at 50 miles per hour it is 3,644 pounds—more than six times as great as at a 20-mile speed. As with the weight on the string, the instant centrifugal force becomes stronger than the friction which holds your vehicle on the turn, the vehicle will fly off the curve.

b. How to round the curve. When you are approaching a curve it is impossible for your eye alone to let you judge accurately the speed at which you can "take it," without running off the road. Hence, the thing to do is to *slow down before entering the curve,* to a speed at which you have absolutely no doubt of safety. That will be a speed considerably less than that at which you can get around safely. So as you start around the curve, and get its "feel," it is all right to increase your speed gradually, provided you do not accelerate rapidly enough to risk "flying off." Make sure that you will not have to take your foot off the accelerator. To slow

down, or apply brakes or coast after entering the curve may cause skidding.

Well-banked curves can be taken at fairly high speeds —unless they are banked the wrong way (outside lower than the inside). These are doubly dangerous. Be especially careful on wet asphalt, icy roads, or other slippery surfaces.

26. STOPPING A SKID. If your vehicle starts skidding in spite of all precautions, turn the front wheels in the same direction as the skid and slow down gradually, as shown in figure 12. The skid will be worse if you apply

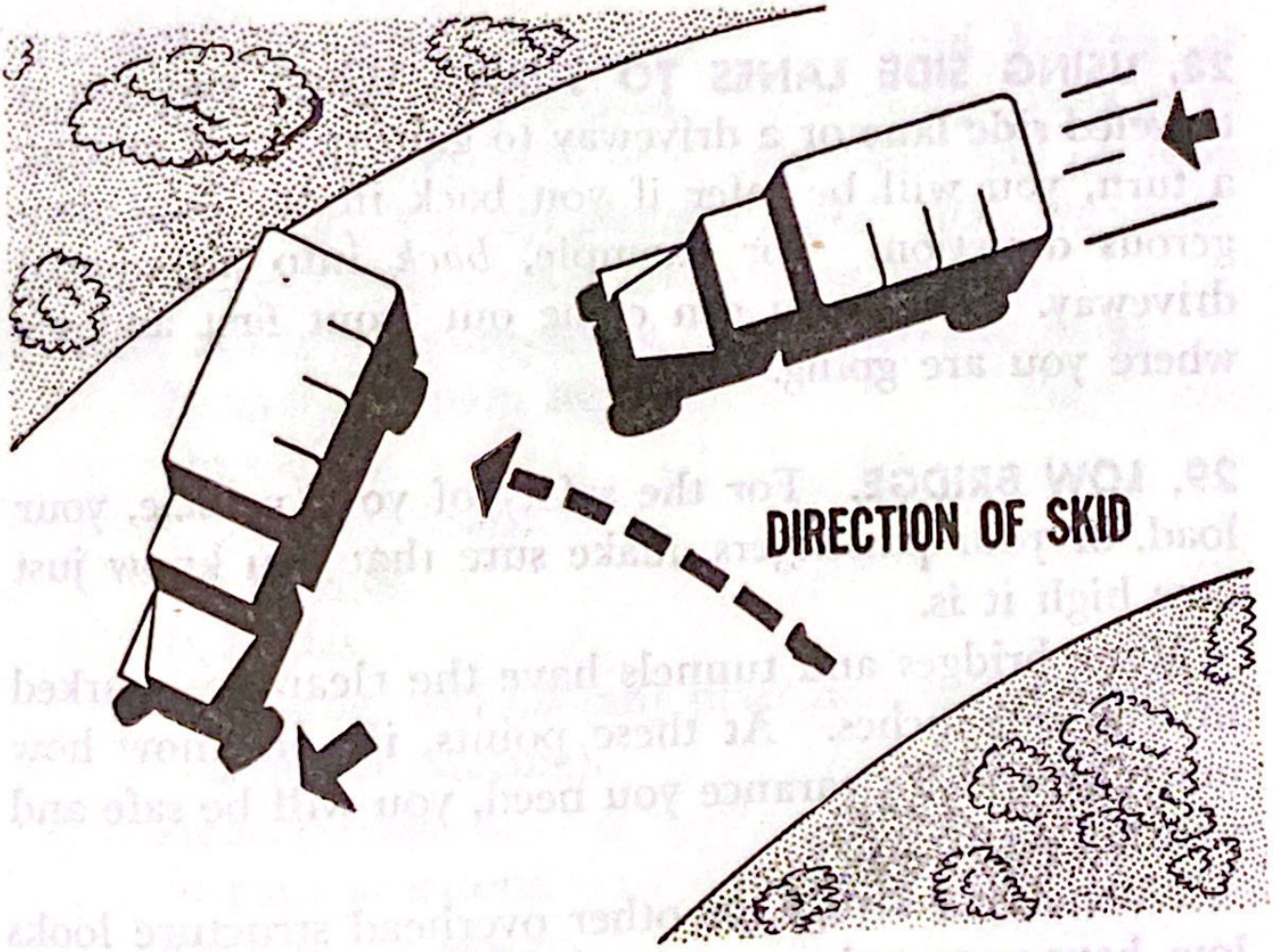


Figure 12. Turn your front wheels into the skid.

brakes, or suddenly take your foot off the gas, or turn the wheels in the opposite direction from the skid.

When the vehicle stops skidding, apply power gradually to bring it back to the proper position on the road.

27. BACKING. When you back, even for a short distance, have your assistant driver, or any other person available, get out and signal whether or not all is clear. If no one is available, get out of the cab and make sure that no one, and nothing, is behind you before you back up. You may prevent damage to your vehicle or even save a life.

28. USING SIDE LANES TO TURN. When you use a traveled side lane or a driveway to gain space in making a turn, you will be safer if you back in the least dangerous direction. For example, *back* into an unused driveway. Then you can come out front first and see where you are going.

29. LOW BRIDGE. For the safety of your vehicle, your load, or your passengers, make sure that you know just how high it is.

Many bridges and tunnels have the clearance marked in feet and inches. At these points, if you know how much overhead clearance you need, you will be safe and will not be delayed.

Whenever a bridge, or other overhead structure looks low, have your assistant driver, if any, get out and watch the clearance, signaling to you whether it is safe to

proceed. Whether you have an assistant driver or not, advance very slowly until you are sure you can clear.

30. BRIDGE LOADS. Keep in mind the weight of your vehicle and load. It may be too heavy for some bridges or culverts. Most such structures have signs prominently displaying the maximum load they will hold. Remember it is better to ford a stream or go around to another bridge than to crash through one that is unsafe.

Also remember that the bridge or culvert may hold the weight of one loaded vehicle, but not two.

31. HALTING AND PARKING. a. Avoid halting or parking in dangerous places. How many times have you come around a curve or a corner and had occasion to remark "That's a fool place to park." Parking in the wrong place always creates an accident hazard.

Here are some examples of "fool" places to park:

Blocking a main highway.
On curves.
On narrow roads.
On bridges.
In defiles.
Near crests of hills (any place on a hill is none too good for parking).
At intersections.
At road junctions.
Blocking driveways.

The place to park safely and conveniently is well to the right side of the road—off the pavement if possible, where

oncoming drivers can see you and have plenty of room to pass—or in a field or vehicle park.

Sometimes mechanical trouble, ground or road conditions, or other reasons, make it necessary to halt in a dangerous place. In such cases, place guards, flags or other available signals so that all who approach will have ample warning. Flares or other lights, if available, should be used at night except in a blackout. Move the vehicle to a safe place as soon as practicable.

b. In vehicle park. Whenever your vehicle is in a vehicle park with others be sure that driving lanes are kept open so that any driver can easily move his vehicle without the need for moving any others. Watch this especially when you have a trailer.

c. Safety of personnel when halted or parked. (1) To be safe from being struck by passing vehicles, you and any others over whom you have control should keep off the road, to the right.

(2) Do not stand between two parked vehicles when either is in preparation to be started, as the gears may be engaged, causing vehicles to be placed in motion immediately.

(3) Never attempt to clean an engine while the engine is in operation; serious accidents may result.

(4) When changing tires or working on your vehicle, be sure that you are in a safe place, if possible, clear of all traffic.

(5) Be sure to check under vehicle before moving it. Personnel may be sleeping or working under vehicle.

d. Tail light must be visible. Except in blackouts, when you halt at night, make sure your vehicle's tail lamps are lighted and that they are not covered in any way—as by a dropped tail board or by a person standing in front of them. If your lights have failed, devise some other warning.

e. Parking on hills. Improper parking on hills is dangerous. Possible result: A driverless, runaway vehicle and a bad crash.

One sure safeguard against such crashes is not to park on a hill—but that is not alway practicable.

When parking, the hand brake should always be set—but on a hill you can't be sure it will hold.

As an easy safeguard against a runaway, turn your wheels so that the vehicle will coast into a curb if the brakes give way. If you are headed downhill, the *front* part of the front wheel should be turned toward the curb, but not resting against the curb. The weight of the vehicle may damage the tire, wheel or steering mechanism. Parking, headed downhill, with the front wheel against the curb carrying the weight of the vehicle will necessitate backing the vehicle before forward movement can be resumed. (See fig. 13.)

If you are headed uphill, the *rear part* of the front wheel should be turned toward the curb. When there is no curb, you can guard against a runaway by blocking the wheels with large rocks, tree limbs, or chocks. This is better practice than leaving the vehicle in gear. If your vehicle is bumped while in gear it is more likely to be damaged.

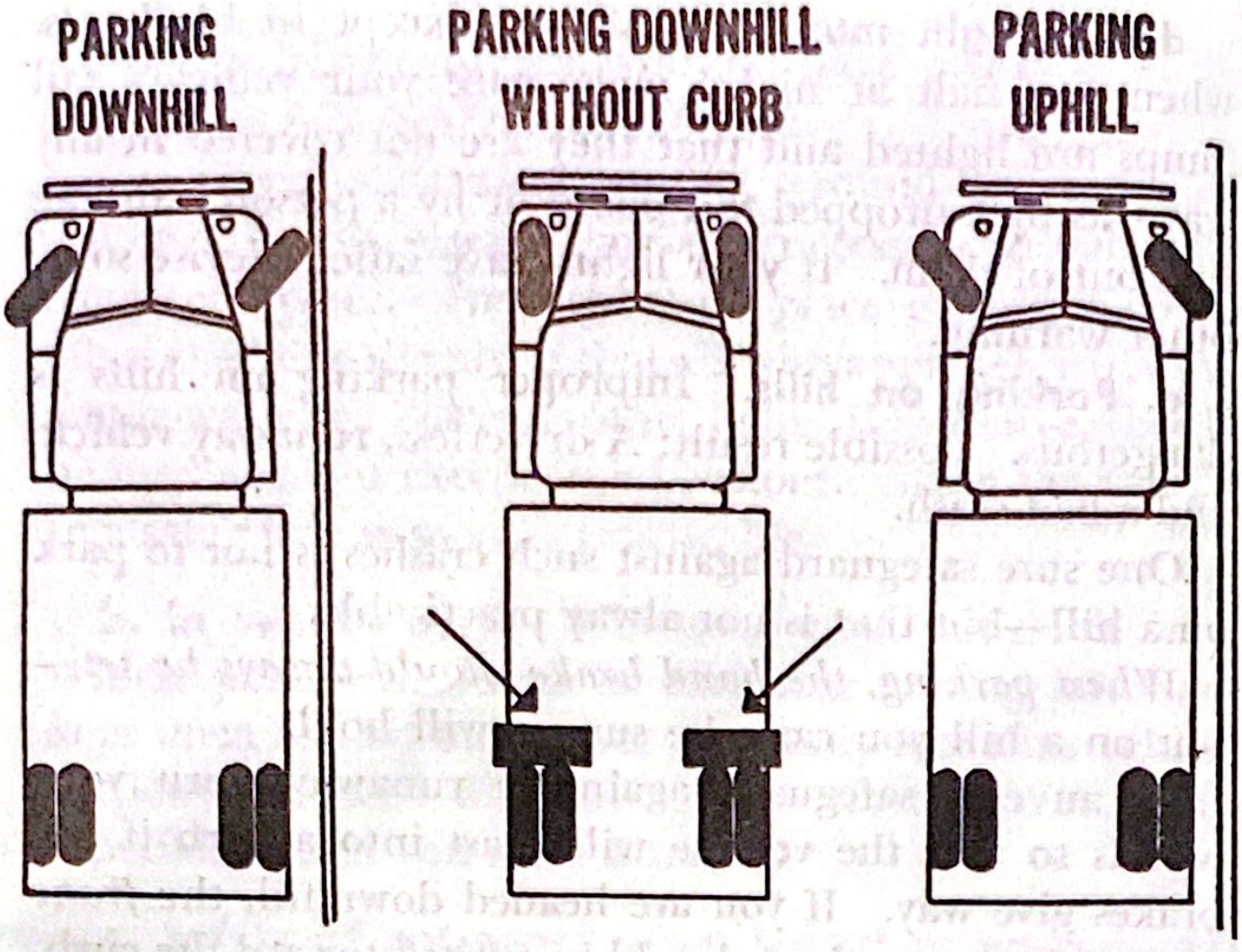


Figure 13. Parking on a hill.

Sometimes where the road is sufficiently wide, or where there is suitable parking space along the roadside, you can protect the vehicle by parking it at right angle to the grade. Such practice, however, is not suitable on steep grades; it throws the load and the vehicle off balance and it may strain or even upset it.

When you cannot take any of the above precautions, the only safe course is to remain in the vehicle. It is *not* safe to rely on your hand brake to hold an unattended vehicle on a hill.

32. ANIMALS, even the smartest ones, would be considered morons if they were human beings. You can't count on their not running in front of you, and you can't count on their getting out of the way.

Many a driver has gone into the ditch or hit a pole trying to avoid running over some animal.

Naturally you don't want to run over and kill any animal, but remember that human lives (including your own) are more valuable than those of animals. If you are forced to choose between hitting a small animal and risking human lives, then hit the animal. However, don't tackle too big a beast. Hitting a cow or a horse or a hog may seriously damage your vehicle or even upset it.

You can probably avoid the need for making the unpleasant choice by using care when you suspect that animals are near. Some states have no fencing laws and cattle may be almost anywhere. In others, "cattle pass" signs warn you that cattle may cross the road at that point. Slow down!

33. FOGS. When it is very foggy, airplanes stop flying, steamships proceed at very low speed and constantly sound a fog horn. Fogs are dangerous because they keep us from seeing. They are particularly dangerous at night. With your headlights on, the little droplets of water that constitute a fog reflect the light back into your eyes.

You can reduce the dazzling reflection of fog by tilting your headlights down and opening your windshield, or by using parking or other dimmer lights when available.

But the only way to be reasonably safe in heavy fog

is to go slowly. Just creep along. Be prepared to stop almost instantly. In heavy daylight fogs turn on your headlamps unless there is danger of being seen by the enemy.

34. NIGHT DRIVING WITH LIGHTS. a. Night driving is dangerous. Night driving is much more dangerous than driving in daylight, largely because even the best headlamps do not enable you to see as clearly and as far as you can in daylight.

b. Avoid "Overdriving your headlights." At night, on roads without street lamps, you rely on your headlamps. If you can stop within the distance that you can see ahead, all is well. If, however, you CANNOT stop within the distance that you can see ahead, it means that you are "driving blind." Sooner or later there WILL be something hidden in that blackness ahead, and since you cannot stop within the distance remaining after you see it, a crash is practically certain.

Therefore, when driving at night, go slowly. Be sure you are not "overdriving your headlights." Be sure you can stop within the distance that you can see. You will then have a good chance of avoiding the otherwise eventual crash. Don't drive "blind."

c. Headlight glare. The pupils of your eyes open wider in the dark, in an effort to get more light so you can see better. When the light gets brighter, the pupils contract in an effort to avoid getting too much light. But this is not an instantaneous operation. You will realize this if you recall that when you first enter a dark-

ened movie theater from the daylight you have a hard time seeing. At first, it seems very dark, but in a few moments you find you can see well. Later, when you come out into bright sunlight, your eyes are dazzled until they have become accustomed to the light.

It takes your eyes quite a while to adjust themselves to sudden changes in light intensity.

Hence, when you are driving along in comparative darkness and a car with bright headlights approaches in the opposite direction, your vision is somewhat impaired, even when the oncoming driver uses his passing beam. When the glare is severe, you may even have an instant of total blindness. After the other car has passed, the impairment continues because your eyes, which have partly adjusted themselves to the light, take time to readjust themselves to the dark.

Tests indicate that the impairment of your vision lasts from 4 to 8 seconds after the other vehicle passes, and that is plenty long enough to hit a pedestrian or anything else that is in the way.

d. Reducing glare danger. You can reduce the danger of accident from glare in the following ways:

Use your own passing beam whenever you approach a car coming from the opposite direction. Do this as soon as you think your beam is in the other fellow's eyes. Don't wait until he is on top of you. When driving on well-lighted city streets, always use the passing beam. (See fig. 14.)

If necessary, signal the other fellow to do likewise by flicking your lights (alternating the beams rapidly).

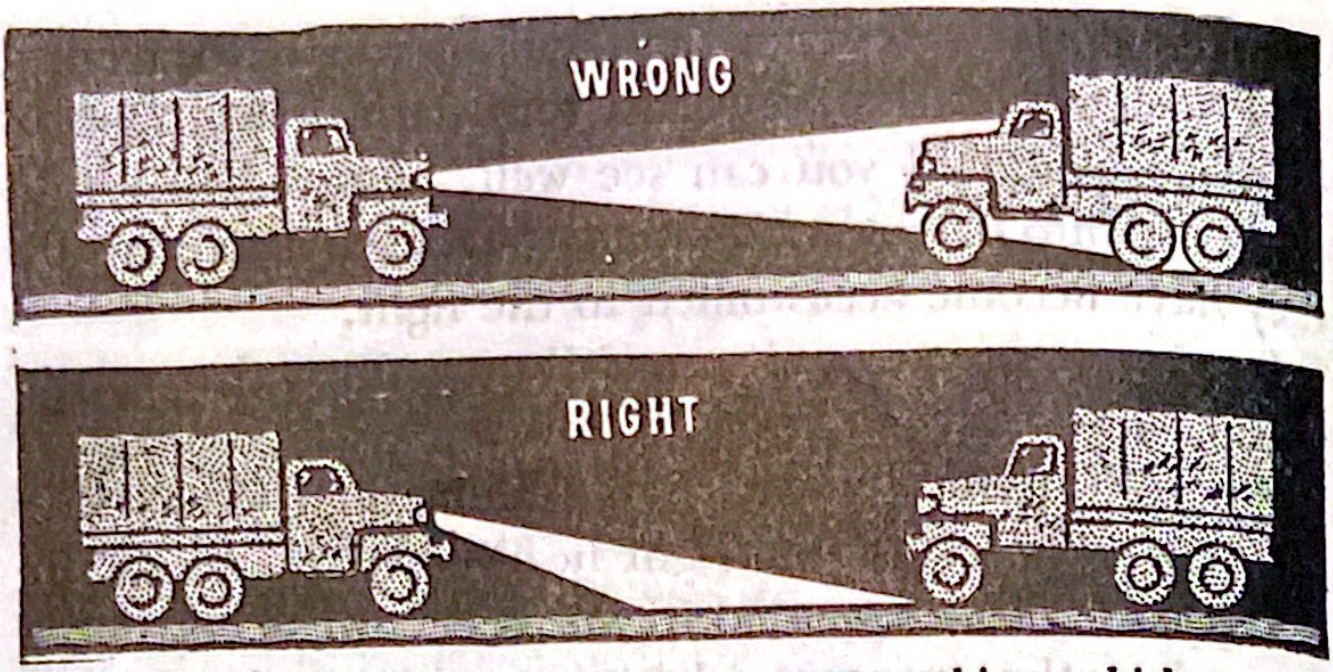


Figure 14. Dim your lights to approaching vehicles.

Keep your windshield very clean.

As the other fellow approaches, do not look at his headlights. Rather look at the right lane of the road, and drive where you are looking. By not looking at his headlights, your eyes get less glare and have less adjusting to do. And above all, knowing you can't see as far at night, reduce your speed.

e. Road conditions. Another reason for driving slowly at night is the fact that, even with your headlights, it is difficult to judge road conditions. If a shadow looks like a hole or an obstruction, it can't hurt you, but if a hole or an obstruction looks like a shadow, it may be "just too bad."

35. HAND CRANKING. Be sure the transmission is in neutral and the hand brake securely set before you hand crank your engine. Then the vehicle won't run over you when the engine starts.

Hold the crank securely. If it slips out of your hand, it may swing around and break your arm.

Keep your thumb and fingers together—not on opposite sides of the crank handle—so that the hand won't be injured if the crank kicks back.

Make sure there is room to swing the handle without knocking or cutting your hand.

Section II. DRIVING SOLO

36. GENERAL. This section contains certain good driving practices which apply especially when you are driving solo, that is, not in a motor column. They are all sound, common sense measures. For your own protection, therefore, you should also apply them even when you *are* driving in a motor column, unless they conflict with the column operation or the orders of the column commander and his assistant.

37. FINDING YOUR WAY. If you expect to "get there" safely when driving solo, of course you will have to know where "there" is, and what kind of roads or cross country routes you will have to follow. This means that you should be familiar with how locations are found on an Army map and familiar with some of the commonly used map symbols.

a. "Read Right Up." You can easily locate any point on an Army map from a simple, numbered designation if you understand the grid. The grid is formed by rul-

ing off the map with numbered north-and-south lines and numbered east-and-west lines. (See fig. 15.) The point where these lines cross is known by the numbers of the two lines, reading first to the *right* and then *up*.

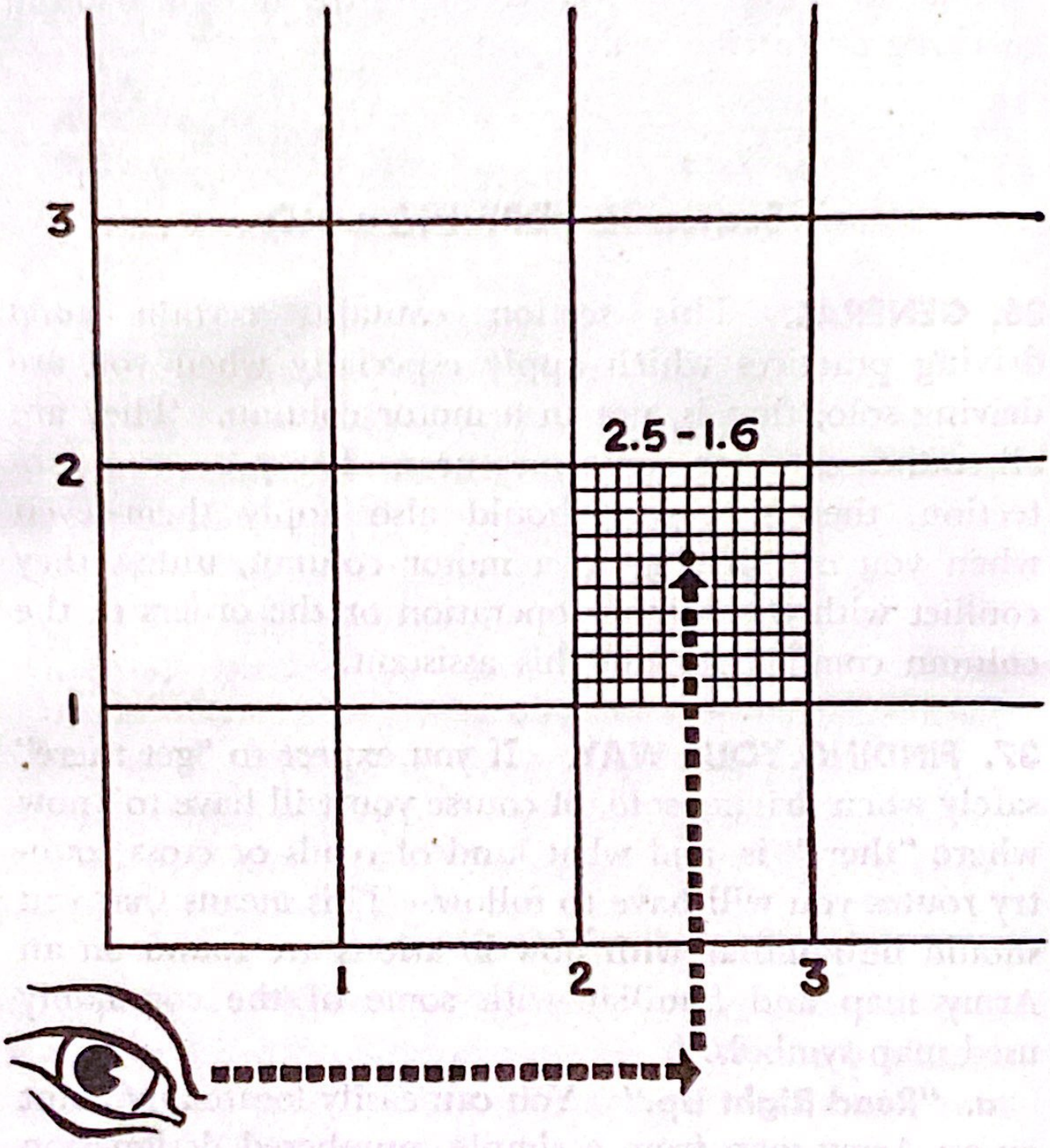


Figure 15. Locating a point on a grid.

"Read right up." As you can see, point 2–1 is at the point where line 2 (reading to the *right*) and line 1 (reading *up*) cross.

Actually, you will very seldom be looking for a point that falls exactly at the crossing of two of these lines. Instead of being told to drive to location 2–2, you may be directed to 2.5–1.6. This is just as easy to find. Again, "read right up." The only difference is that you now locate line 2 (reading to the right), and continue to a point five-tenths of the way from there to line 3. Then locate line 1 (reading up), and continue to a point six-tenths of the way to line 2. The location is shown in figure 15. Although you won't find the tenths marked on a real grid map, you can easily space them off for yourself.

b. Estimating the distance. Maps are drawn to scale, so that by measuring the distance on the map you can estimate the distance on the ground. This scale may be indicated by a simple note such as "3 inches equals 1 mile," which means that 3 inches on the map is equal to 1 mile on the ground. You can then use a 3-inch strip of paper as a ruler to measure the number of miles on the map. Sometimes, instead of such a note, a ruler is printed on the map for you. Another method of showing the scale is by a fraction, for instance: $\frac{1}{63,360}$, or 1: 63,360. Either of these fractions tells you that 1 unit of distance on the map is equal to 63,360 on the ground—for instance, 1 inch on the map is equal to 63,360 inches on the ground, which is equal to 5,280 feet or 1 mile.

c. Strip maps, which show only the route you are to drive do not have grids, and may not have scales. (See fig. 16.)

d. Map symbols. Army maps are marked with a standardized set of symbols which will help you find your way. They tell you the kind of road, show bridges, fords, ferries, and railroad crossings; and give you the locations of landmarks, in addition to much other useful information. Study the symbols shown in figures 17 and 18, so that you will recognize them on a map.

e. Know the country in which you are operating. When you are stationed at an unfamiliar location, make it a point to become acquainted with the landmarks and geographical features of that area. This will greatly aid you in using maps or in operating without maps.

38. "RULES OF THE ROAD" have been gradually built up because it has been found that they are not only the safer ways but also the more convenient. Some rules of the road are prescribed by law. Others are simply courtesy, good manners, and common sense. Any driver who does not know and comply with the rules of the road not only endangers himself and others—he also betrays himself as an inferior driver, as "green," ignorant, or lacking in common sense. Some of the rules of the road are given in paragraphs 39 to 52, inclusive.

39. KEEP TO THE RIGHT. When driving on a two-lane road, stay on the right half except when necessary to drive to the left while passing slower-moving or parked

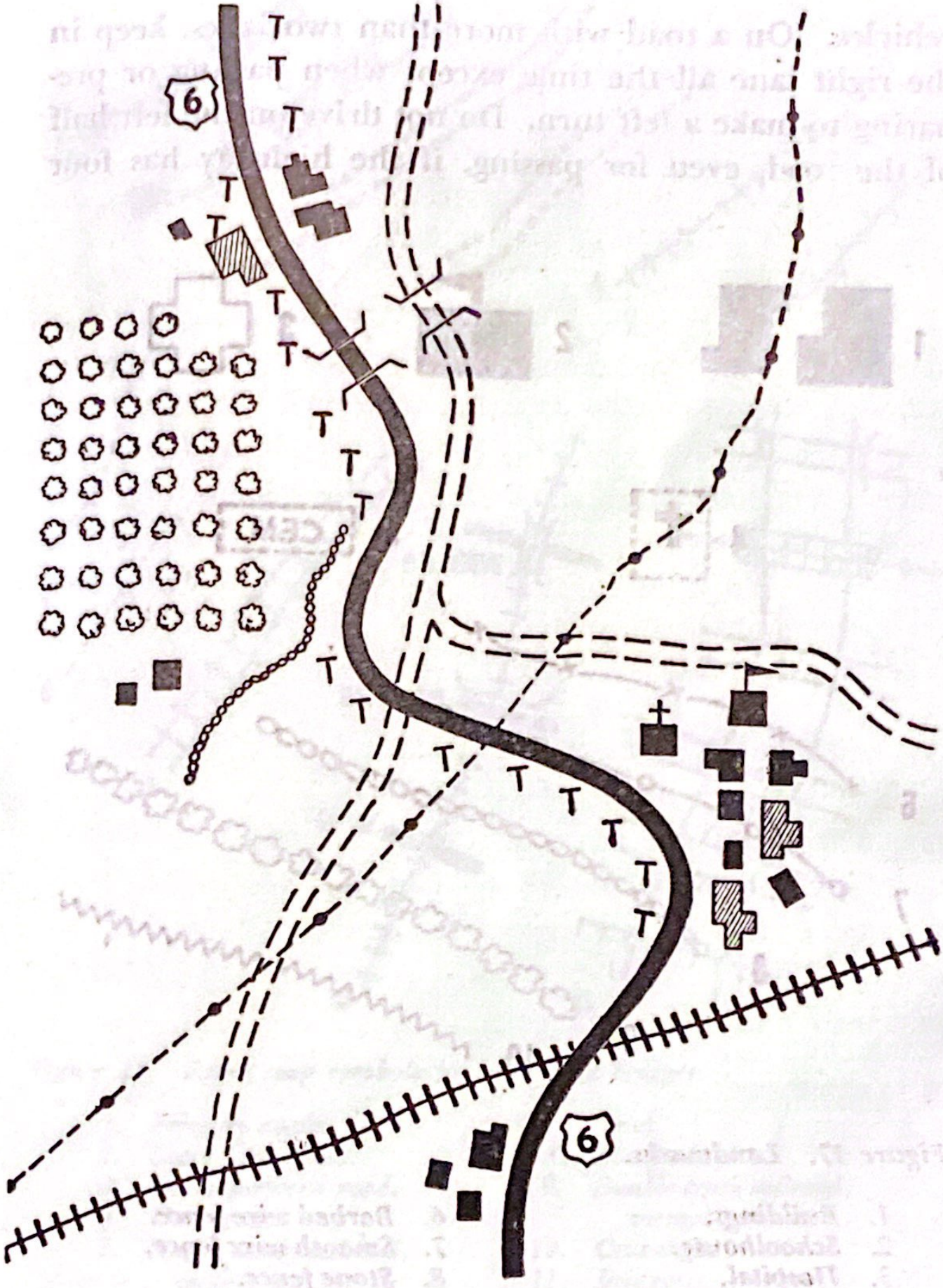


Figure 16. A strip map.

vehicles. On a road with more than two lanes, keep in the right lane all the time except when passing or preparing to make a left turn. Do not drive on the left half of the road, even for passing, if the highway has four

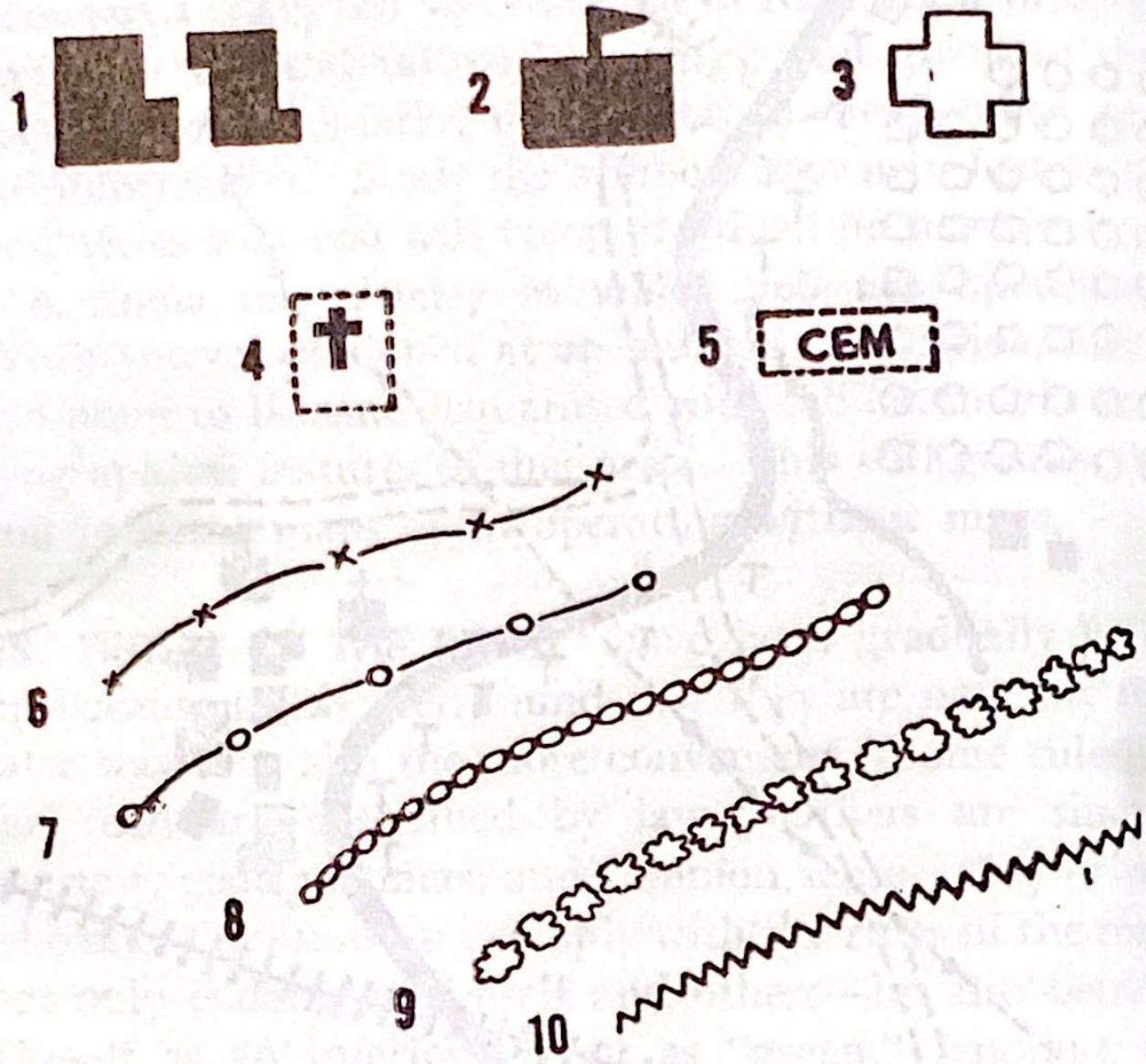


Figure 17. Landmarks.

1. *Buildings.*
2. *Schoolhouse.*
3. *Hospital.*
4. *Cemetery (USA).*
5. *Cemetery.*
6. *Barbed wire fence.*
7. *Smooth wire fence.*
8. *Stone fence.*
9. *Hedge fence.*
10. *Worm fence.*

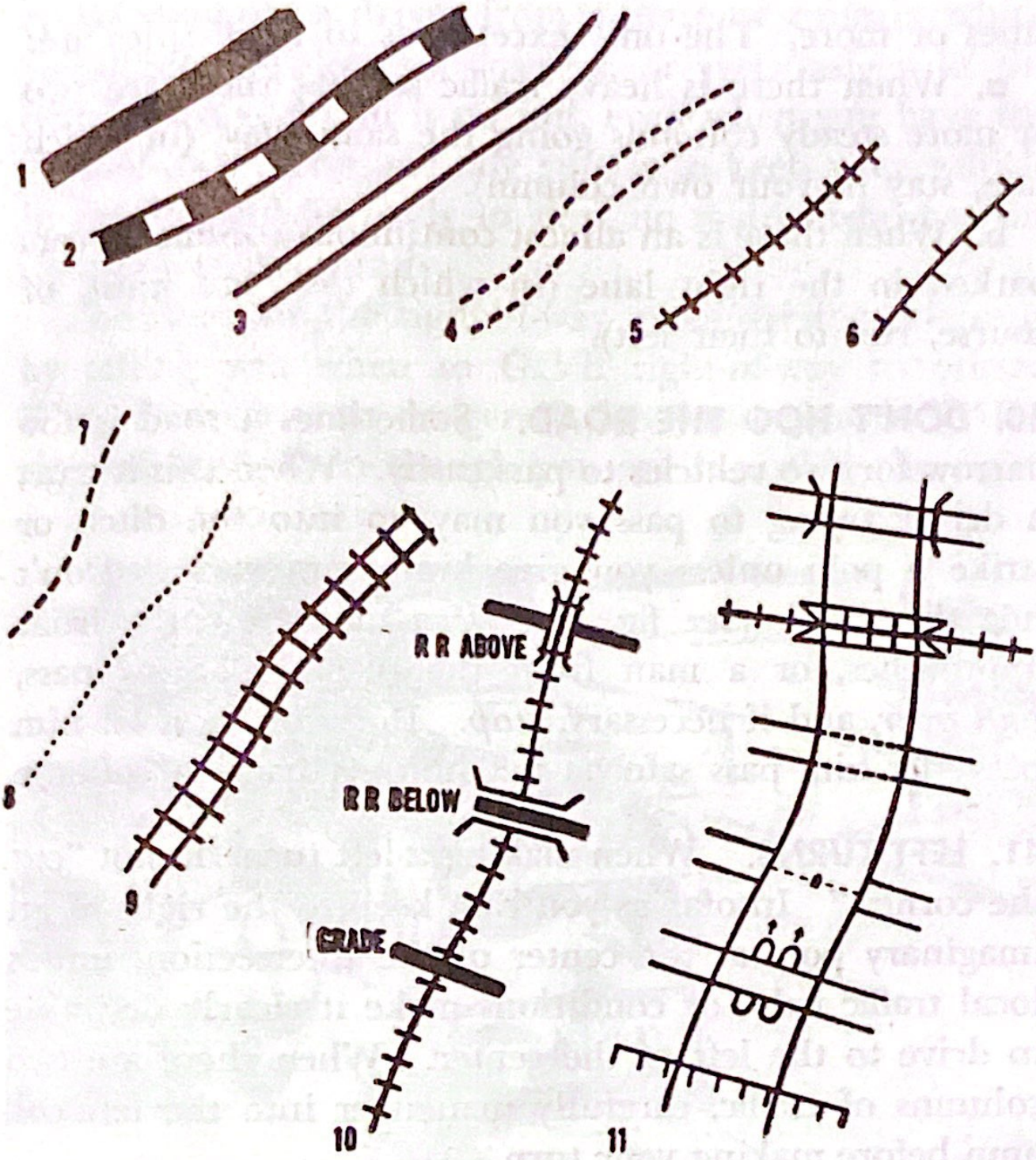


Figure 18. Some map symbols for roads and bridges.

1. *Primary roads.*
2. *Secondary roads.*
3. *Other surfaced roads.*
4. *Dirt road.*
5. *Single track railroad, wide gage.*
6. *Single track railroad, narrow gage.*
7. *Trail.*
8. *Footpath.*
9. *Double track railroad, normal gage.*
10. *Crossings.*
11. *Bridges.*

lanes or more. The only exceptions to these rules are:

a. When there is heavy traffic so that there are two or more steady columns going the same way (in which case, stay in your own column).

b. When there is an almost continuous column of cars parked in the right lane (in which case you must, of course, run to their left).

40. DON'T HOG THE ROAD. Sometimes a road is too narrow for two vehicles to pass easily. When this is true, a driver trying to pass you may go into the ditch or strike a pole unless you give him extra room. Don't hog the road. (See fig. 19.) If a man from the front approaches, or a man from the rear signals to pass, *pull over*, and if necessary, *stop*. Do more than let him pass—let him pass safely. Let him get back in column.

41. LEFT TURNS. When making a left turn, do not "cut the corner." Insofar as you can, keep to the right of an imaginary pole at the center of the intersection, unless local traffic rules or conditions make it clearly desirable to drive to the left of the center. When there are two columns of traffic, carefully maneuver into the left column before making your turn.

42. RIGHT-OF-WAY. "Here lies the body of Jonathan Hay, who died defending his right-of-way." If you want to be sure of avoiding Jonathan's fate, give the right-of-way to anyone who wants it. Remember that the other fellow may not know the rules of right-of-way, or he may be one of those who try to bluff their way through, right

or no right, or a driver from a State or country which has different rules and customs, or just "asleep at the switch." A collision is no fun, even when you have the right-of-way. The one safe rule is to keep your vehicle in control and be ready to stop, no matter who has the right-of-way technically.

The rules for the right-of-way make driving safe only by telling you when to GIVE right-of-way to others. They increase your danger if they cause you to TAKE right-of-way. Even though you are sure that the right-

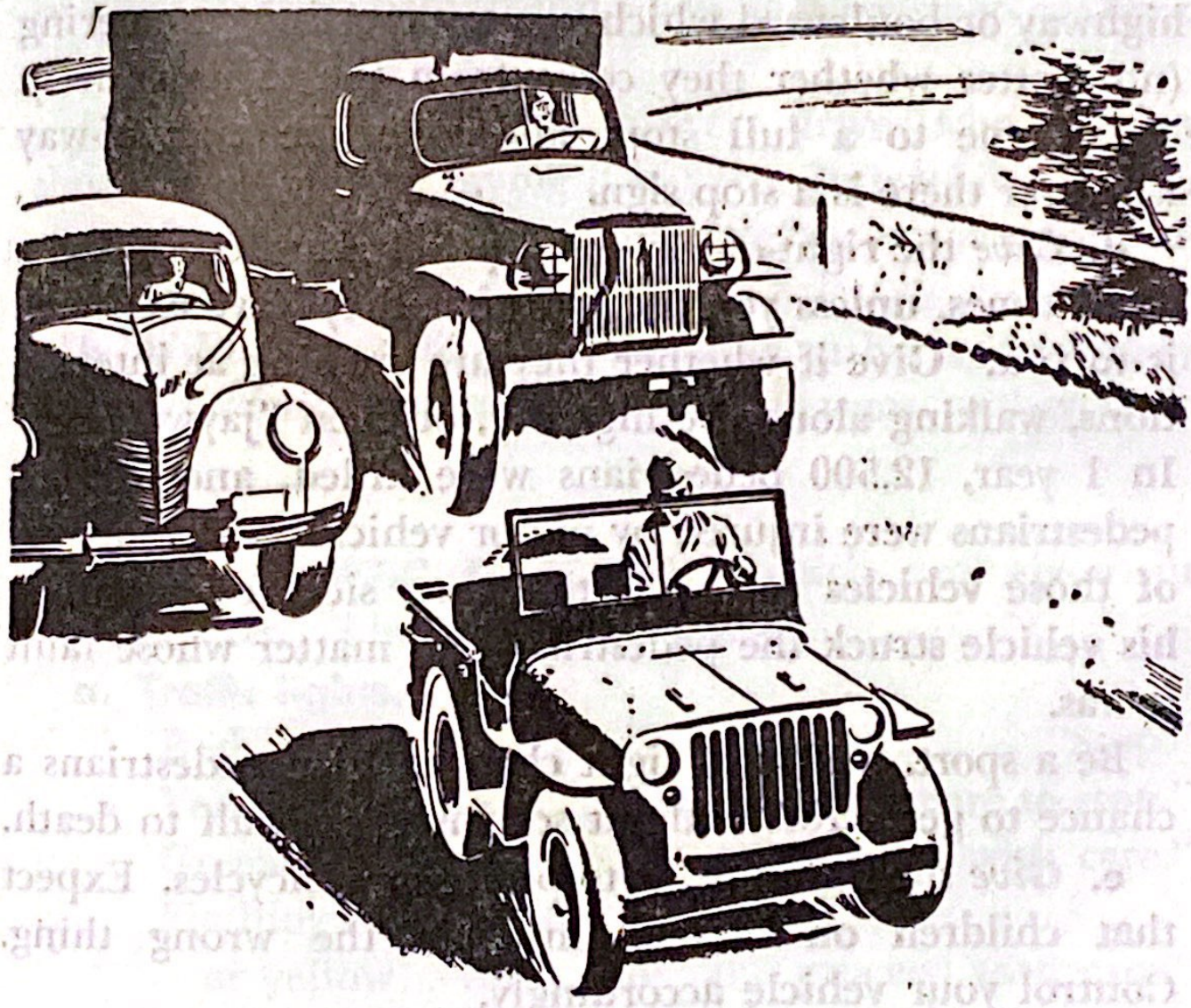


Figure 19. Don't hog the road.

of-way is yours, that is not enough. You must also be sure that the other fellow knows it's yours—and that he acts accordingly.

Traffic regulations in the United States are more nearly uniform than they used to be, but they still are not entirely uniform. In foreign countries they vary greatly. Generally, however, you will find that the following practices lessen the danger of collision.

a. *Give* the right-of-way to all vehicles approaching from your *right.*

b. *Give* the right-of-way to all vehicles on a main highway or boulevard which you are crossing or entering (no matter whether they come from the right or left).

c. Come to a full stop; and give the right-of-way wherever there is a stop sign.

d. *Give* the right-of-way to all pedestrians, everywhere, at all times, unless you are *sure* that they have extended it to you. Give it whether they are crossing at intersections, walking along the highway, or even "jaywalking." In 1 year, 12,500 pedestrians were killed, and 260,000 pedestrians were injured by motor vehicles. The drivers of those vehicles each felt the same sick feeling when his vehicle struck the pedestrian—no matter whose fault it was.

Be a sport. When a light changes, give pedestrians a chance to get across without scaring them half to death.

e. *Give* the right-of-way to persons on bicycles. Expect that children on bicycles may do the wrong thing. Control your vehicle accordingly.

f. *Give* the right-of-way to any driver making, or sig-

naling for, a left turn at an intersection.

g. *Give* the right-of-way to all police and fire department vehicles, ambulances, and other emergency vehicles. When they approach, pull over to the right, to the curb or edge of the road, if possible, clear of any intersections, and stop until they have passed. Sometimes in heavy traffic you cannot do this. If so, comply as nearly as you can.

h. *Give* all rights-of-way indicated by signs, traffic lights, or signals from individuals.

i. *Give* the right-of-way to a driver who is endeavoring to pass you from behind and when he is trying to get back into column.

j. *Give* the right-of-way to every driver who has not shown clear signs of giving it to you. In brief, to be safe, remember this rule: "The *other fellow* always has the right-of-way."

k. Military or civil police have the authority to modify the rules of right-of-way for special reasons. Obey their signals.

43. OBEY TRAFFIC DIRECTIONS which are given in various ways. The most general are:

a. **Traffic lights.**

Red ..... "Stop."
Yellow ..... "Caution—Prepare to stop."
Green ..... "Go ahead with care."
Flashing red
or yellow . . "Stop, look, and proceed with care."

b. **Traffic police,** who signal or tell you what to do.

c. **Signs,** giving directions or information, such as:

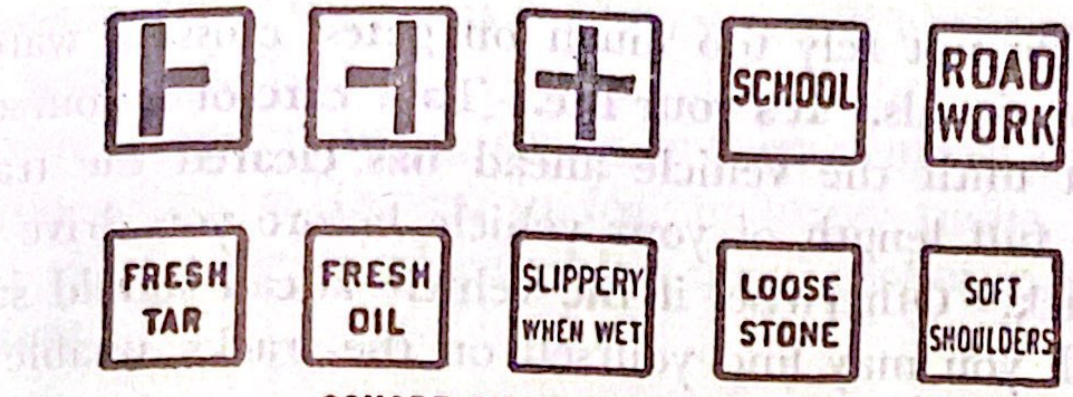
Keep right.
Slow.
Stop.
RR crossing.
No parking.
One way traffic.
School.
Dangerous hill—Trucks go in low gear.
Speed limit 25 miles.

Often this information is shown in simple diagrams, such as arrows or cross marks, like those shown in figure 20, which indicate dangerous curves or intersections. In some states these symbols are marked with the highest safe speed for that curve or intersection. In most states, the *shape* of the sign has a meaning, as shown in figure 20. Learn to read the road.

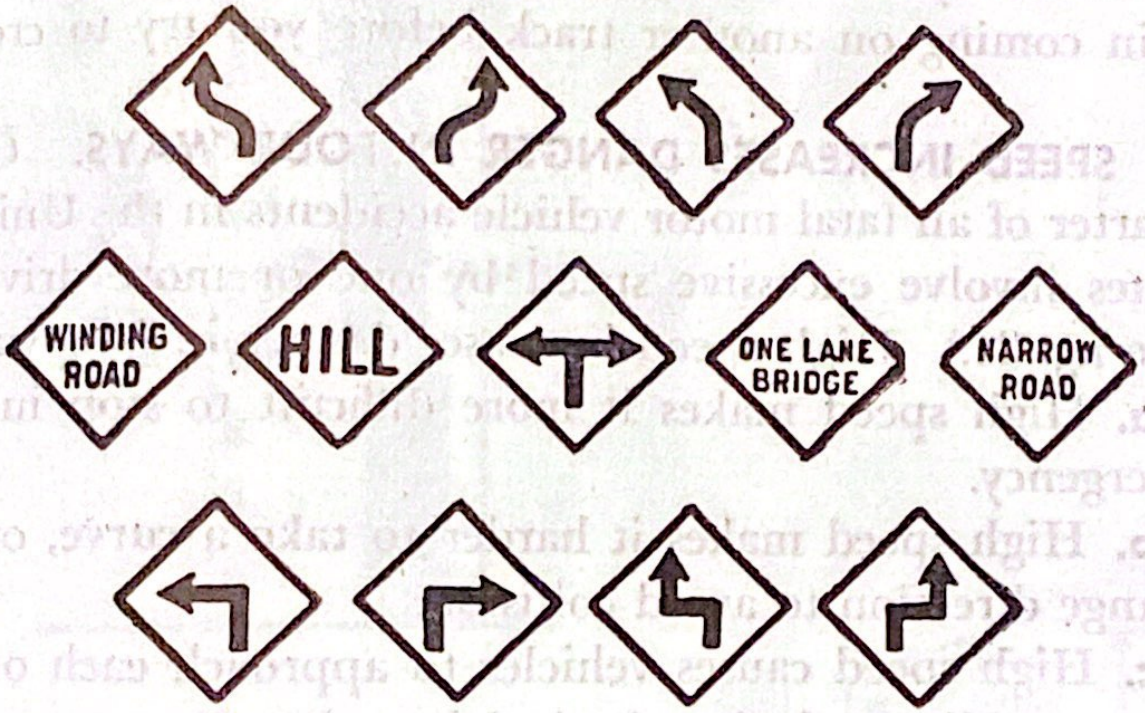
Such directions have been provided by authorities who know the conditions you face, to warn you against some danger. Take their word for it. Observe and comply with *all* such directions.

44. CROSSING RAILROAD TRACKS. Locomotives have little respect for your right-of-way. More than three thousand motor vehicles were wrecked by locomotives in a single year. And the locomotive is likely to do a thorough job.

To avoid these severe accidents, always **STOP, LOOK, AND LISTEN at a railroad crossing not protected by a watchman or an automatic signal.**



SQUARE SIGNS MEAN CAUTION



DIAMOND SIGNS MEAN REDUCE SPEED

OCTAGONAL SIGNS MEAN STOP

ROUND SIGNS MEAN RAILROAD CROSSINGS

Figure 20. Road signs.

But do not rely too much on gates, crossing watchmen, or signals. It's your life. Take care of it yourself.

Wait until the vehicle ahead has cleared the track by the full length of your vehicle before you drive on the track. Otherwise, if the vehicle ahead should stop or stall, you may find yourself on the tracks, unable to move, and out of luck.

When you have been waiting for a train to pass, and it has finally done so, be sure that there is not another train coming on another track before you try to cross.

45. SPEED INCREASES DANGER IN FOUR WAYS. One quarter of all fatal motor vehicle accidents in the United States involve excessive speed by one or more drivers. (See fig. 21.) High speed increases danger in four ways:

a. High speed makes it more difficult to stop in an emergency.

b. High speed makes it harder to take a curve, or to change direction to avoid collision.

c. High speed causes vehicles to approach each other more rapidly, and gives both drivers less time to act.

d. High speed makes the impact of collision more severe. Speed limits are intended to reduce these hazards.

Army men have two sets of speed regulations: those imposed by military authority (including the maximum speeds prescribed for your vehicle and listed on the caution plate); and those imposed by civil law, with which the Army cooperates. You should therefore know the motor vehicle laws of the states in which you operate, and obey the speed limits of those states, as well as the

speed limits of the Army. Thus you will avoid penalties as well as accidents.

Slow down at night, or on bad or slippery roads, at intersections, at curves, in fog, in heavy traffic, and at any other time or place which speed makes more dangerous.

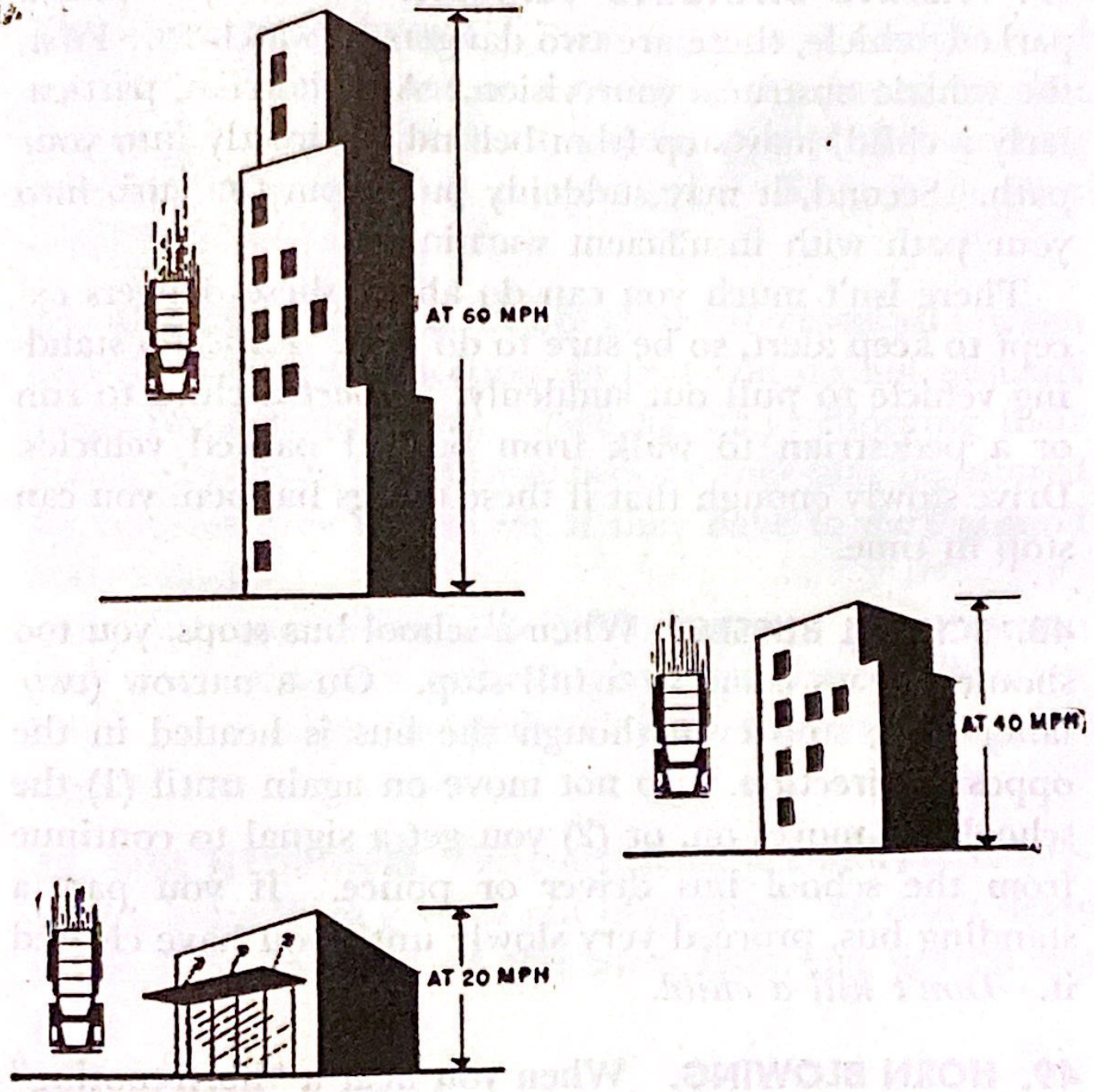


Figure 21. The lower the speed the less the crash.

46. FOLLOWING OTHER VEHICLES. The vehicle ahead of you may have better brakes than yours. The driver may not signal. To avoid the danger of ramming him, keep a safe distance behind. A good way of estimating this is the general rule suggested for driving in column (see par. 60).

47. PASSING STANDING VEHICLES. When you pass a parked vehicle, there are two dangers to watch for. First, the vehicle obstructs your vision. A pedestrian, particularly a child, may step from behind it directly into your path. Second, it may suddenly pull from the curb into your path with insufficient warning.

There isn't much you can do about these dangers except to keep alert, so be sure to do that. *Expect* a standing vehicle to pull out suddenly. *Expect* a child to run or a pedestrian to walk from behind parked vehicles. Drive slowly enough that if these things happen, you can stop in time.

48. SCHOOL BUSSES. When a school bus stops, you too should always come to a full stop. On a narrow (two-lane) road, stop even though the bus is headed in the opposite direction. Do not move on again until (1) the school bus moves on, or (2) you get a signal to continue from the school bus driver or police. If you pass a standing bus, proceed very slowly until you have cleared it. *Don't kill a child.*

49. HORN BLOWING. When you hear a "horn-tooting" driver, you can be pretty sure that he is an inexperienced

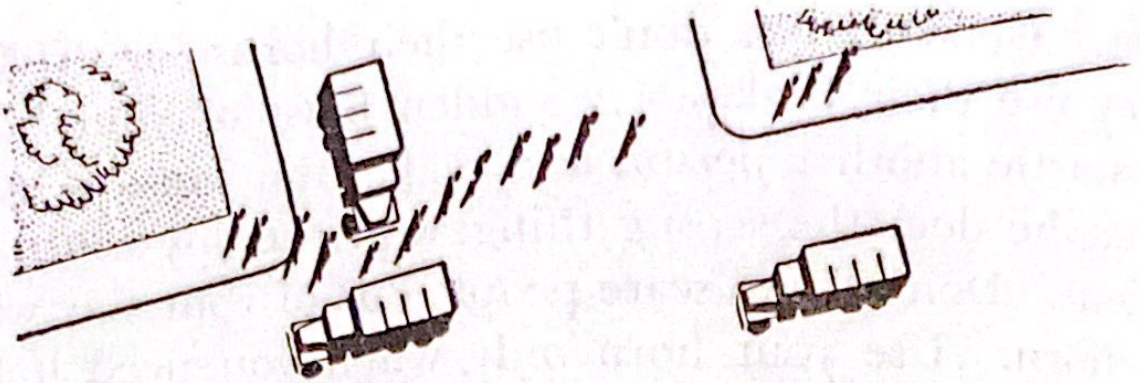
driver. Good drivers don't use their horns for driving —they use their brakes. A sudden blast of your horn may startle another person and make him lose his head so that he does the wrong thing; you thereby cause an accident. Don't try to scare people out of your way with your horn. Use your horn only when you need it for a warning.

50. HOLD THAT WHEEL. Even on a good straight road you may strike a stone or a break in the pavement that suddenly deflects your front wheels, so hold that steering wheel with a firm but relaxed grip. Keep it in your control. *Use both hands.*

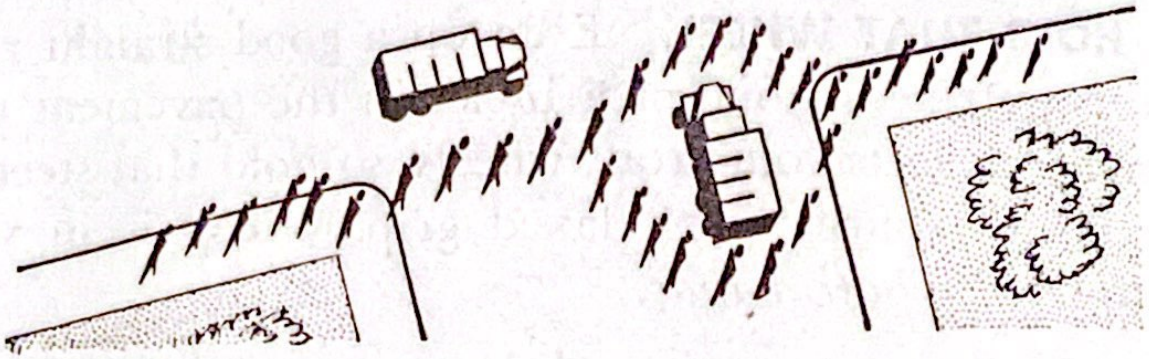
51. CROSSWALKS. **a.** Keep clear of crosswalks when you halt at an intersection, so that you do not obstruct pedestrians' right-of-way. (See fig. 22.) Blocking their way is chiseling—and worse, because they may be injured by vehicles they cannot see if they have to dart around your vehicle.

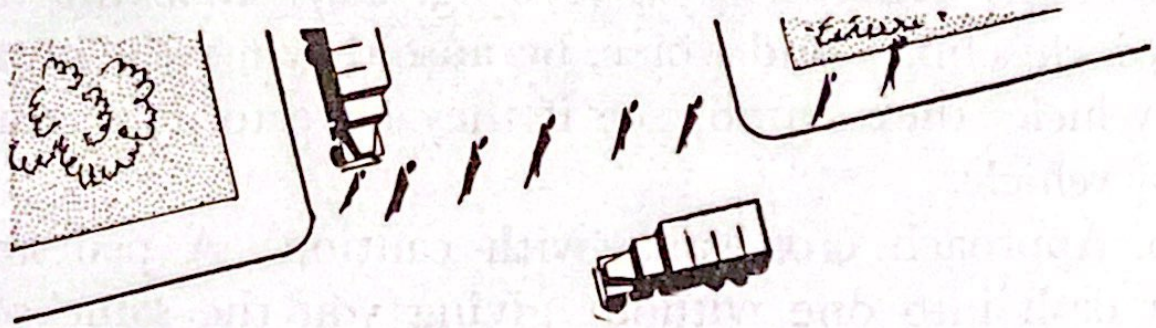
b. Approach crosswalks with caution. A pedestrian may dash into one without giving you the same courtesy. Remember the pedestrian in crosswalks has the right-of-way.

52. FIRE HYDRANTS. Firemen must act quickly to prevent a blaze from getting out of control. So don't delay them. Park at least 15 feet away from the nearest fire plug.



WRONG





RIGHT

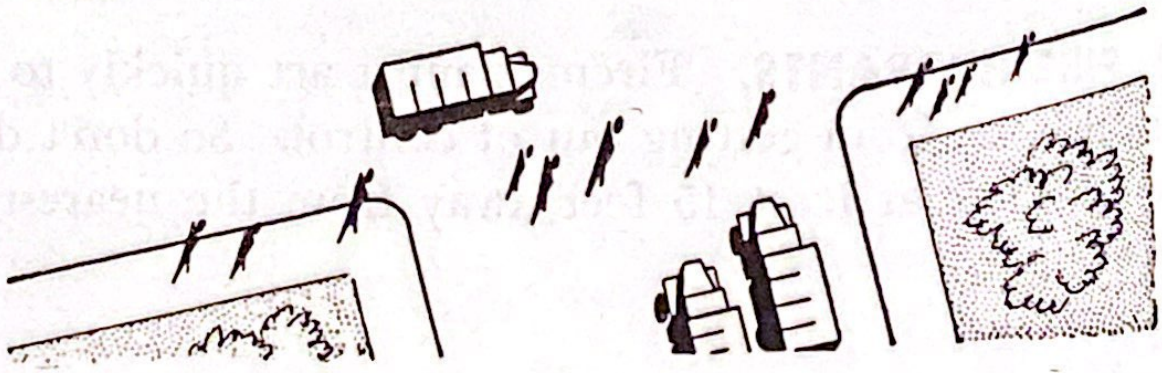


Figure 22. Keep crossings clear.

Section III. DRIVING IN A MOTOR MARCH COLUMN

53. CONTROL BY THE COLUMN COMMANDER. When you are driving in a march column, your column commander controls your speed, the distance between vehicles, routes, traffic precautions and other details, with the assistance of his officers and noncommissioned officers.

54. YOUR RESPONSIBILITY IN A MARCH COLUMN. Even though you are driving in a military march column, you, the driver, are still responsible for the safe operation of your own vehicle. The fact that you are part of a column does not lessen the need for you to be *alert* and *careful.* When driving a single vehicle, you control your own speed and direction. In a march column, you are expected to maintain your place and still avoid accidents. Your responsibilities are not lessened—they are increased. USE AND OBEY HAND SIGNALS.

55. THE COLUMN COMMANDER WANTS SAFE OPERATION. The column commander expects you to do everything that is necessary for the safety of your vehicle and its passengers or cargo. He wants you to maintain your position in column, but he expects you to realize that a slight delay is better than a crash and an indefinitely long delay.

Normally the orders of the column commander are designed to help you maintain your place safely in column, avoiding accidents, damage, and bodily injuries.

Only when the military situation makes it imperative, will the column commander require you to assume risks.

56. OBSERVE GENERAL SAFETY PRECAUTIONS. Most safety precautions apply equally well whether you are driving in a march column or not. While in column, the speeds, distances, and details may be regulated by a higher authority. But other responsibilities remain yours as a driver. For example, you still carry out your preventive maintenance services, you still take care to avoid sudden stops, and, perhaps most important, you still give the proper signals.

The best way to avoid accidents in column is to observe carefully every safety precaution which does not conflict with the orders of the column commander.

You will be able to drive more safely in column if you understand the general precautions usually taken, as well as your own responsibilities. Paragraphs 57 to 61, inclusive, will give you an idea of some important points in safe march column operations.

57. RIGHT-OF-WAY OF A SMALL MOTOR MARCH COLUMN. Except in special military necessity, each vehicle of a small motor march column extends the same right-of-way as individual vehicles, unless the column is accompanied by a police escort to block off traffic.

58. RIGHT-OF-WAY OF A LARGE MOTOR MARCH COLUMN. Large march columns running on a march order schedule might be frequently split and their schedule disrupted if they observed all the customary practices

as to right-of-way, traffic signal lights, etc. To keep intact and on time, a large motor column must proceed steadily, without unscheduled interruptions.

a. Area control. One of the best ways of preventing intersection collisions with motor columns lies in area control. Under this plan the route and time schedule is furnished to civil or military police authorities in a given area, who arrange to divert or block off cross traffic. This may be done from a distance of several blocks off the motor march route if the convoy is large. It may otherwise be done by stationing police at intersections or by arranging for the column to have green traffic lights throughout the area, or both. This is in addition to any accompanying police escorts. The area control police do not accompany the column, but remain at their posts like ordinary civil traffic police.

Obviously this method is workable only in areas where sufficient police, either civil or military, are available.

b. Accompanying police. Civil or military police on motorcycles or in small cars, should precede a motor column far enough to clear the road and halt all cross traffic in time to let the head of the column pass safely. One or more police should remain at each intersection until the last vehicle in the convoy has cleared; then they pass at a reasonable speed to the column head, ready to guard the next cross road.

c. Guides (or route markers) and guards, may be dropped from a vehicle which precedes the column. Rear vehicles pick up these guides or guards, and at the first appropriate halt proceed to the head of the column

so that the men may be dropped off again. The vehicles at the head of the column, when empty, halt until the column has passed, so that they can pick the men up. In small convoys, these men rejoin their proper vehicles by foot at the first halt that allows them time to transfer.

d. Closing up in cities. In cities and elsewhere in heavy traffic where speed is reduced, it is safe for vehicles to run closer together, presenting to cross traffic an almost solid column. Under such conditions it is almost impossible for a civilian motorist not to realize that a military motor column is crossing an intersection. This materially reduces the danger of collisions. However, if the close distances are not maintained, a civilian may get the impression that the column has passed, when it is only interrupted. He may then attempt to cross, and crash into the vehicle which lagged. Hence, when close distance is adopted as a safety precaution, the prescribed distances must be rigidly maintained.

Close distances are not safe when the column runs at higher speeds, because sudden slowing or stopping may cause the vehicles to pile up.

e. When no orders have been issued as to right-of-way. In a motor column, in the absence of orders to the contrary from the column commander, you must—

(1) Obey all local, State, or military traffic regulations, traffic signs, and signals.

(2) Drive through a signal light controlled intersection only under the following conditions:

(*a*) When light is green.

(*b*) When light is flashing or fixed yellow.

(*c*) When a guard (or civil or military police), who is controlling or regulating traffic at the intersection, signals all clear.

(*d*) When light is not operating.

(3) At all times, operate at such a speed and in such a manner that you have proper control over your vehicle.

f. Railroad crossings. Police or military guards should be stationed at all railroad crossings while a motor column is passing over the tracks. Their duty is to halt the column in plenty of time if a train is approaching.

But these precautions do not relieve you, as a driver, of the responsibility for making sure that all is clear before you cross railroad tracks.

59. FASTER-MOVING VEHICLES. When an "outside" vehicle not under control of the column commander breaks into the column, it may lag behind the vehicle it is following and cause vehicles in the column to lose distance. This will produce the undesirable "accordion" effect in which the length and spacing of the column is constantly changing. It increases danger of accident.

When the highway is wide enough and the police escort is sufficient, this danger may be prevented by keeping the column in the right lane, and compelling all other vehicles to keep out of it.

However, in military operations there are usually many military vehicles, such as staff officers' cars or motorcycles, which must proceed in the same direction as the convoy but at greater speed. Frequently there are also civilian vehicles whose drivers are in a hurry. If there are not

enough lanes and enough police to keep such vehicles in a different column, you as a driver should permit all such overtaking vehicles to pass freely. Keep well to the right. Give them plenty of room to pass you and to fall in ahead of you in the column if necessary. An overtaking vehicle which cannot get back in column, or is delayed in getting back, may side-swipe you or collide head-on with a vehicle coming in the opposite direction.

60. SAFE DISTANCES IN COLUMN are determined by road and weather conditions, and by the need for space enough to stop without rear-end collisions, and to let faster-moving vehicles pull into the column after passing.

If you have no other orders you will find that it is a good general rule to keep, as nearly as you can, a distance in yards which is twice the rate of speed at which you are driving. If you are running at 25 miles per hour, leave 50 yards' distance between your vehicle and the one just ahead. For a 30-mile speed allow 60 yards; for 35 miles, 70 yards, etc. Remember this is *yards, not feet.*

But do you know what 50 or 60 or 70 yards looks like? To avoid accidents you must not only know what distances are prescribed, but also be able to judge these distances.

You can accomplish this more easily if you will practice estimating distance now and then. Take some known distance, like the length of a truck or the distance between telegraph poles, and observe carefully how that distance looks to you. Try this in different lights, day, night, dusk, etc., and you will soon be a good estimator of distance. This ability helps in many ways in the Army.

61. SIGNALS recommended for motor march use are:

ATTENTION

Extend arm full length above the head, palm to front, and move it a few inches slowly from side to side several times.

START ENGINES

Simulate cranking by describing circles in front of body with right arm, fist closed.

READY TO START

Face leader, and extend arm vertically, fingers extended and joined, palm toward the leader.

FORWARD MARCH

Raise arm vertically, palm to front and lower it to horizontal position in direction of march.

STOP ENGINES

Cross arms in front of body at waist and move them sharply to sides. Repeat several times.

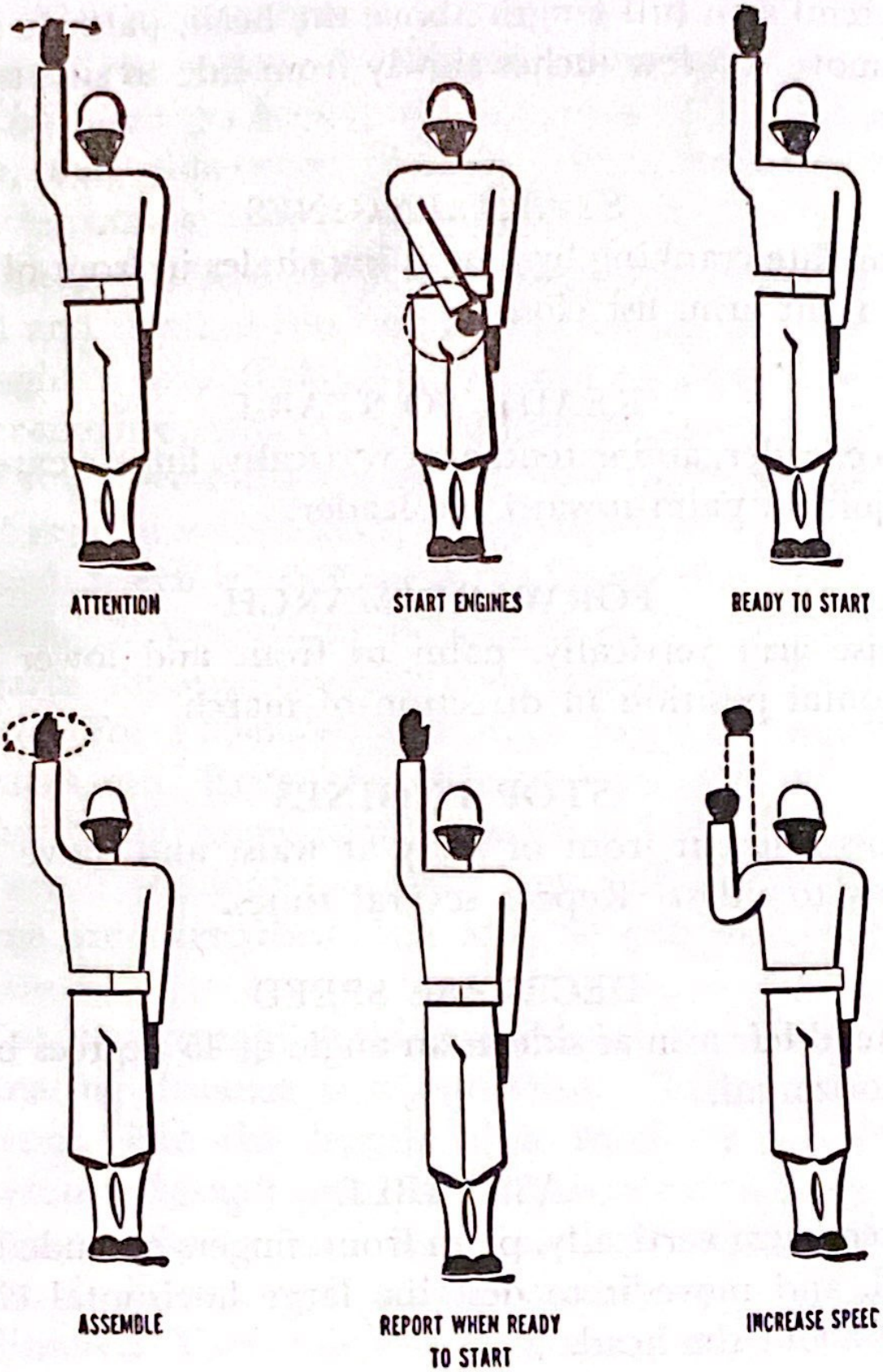
DECREASE SPEED

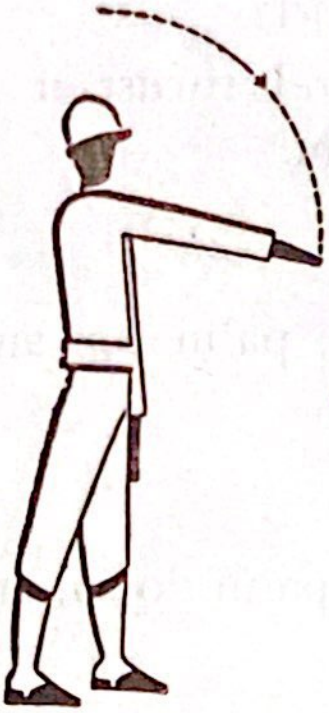
Extend left arm at side at an angle of 45 degrees below the horizontal.

ASSEMBLE

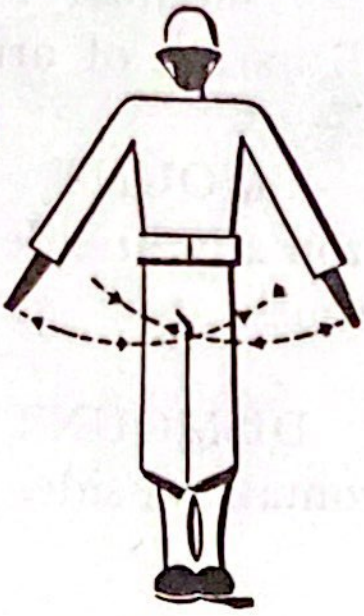
Extend arm vertically, palm front, fingers extended and joined, and move it to describe large horizontal circles slowly about the head.

Figure 23. Motor march signals.

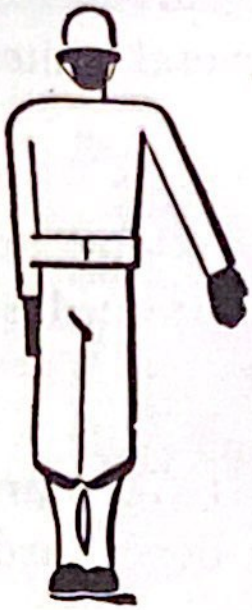




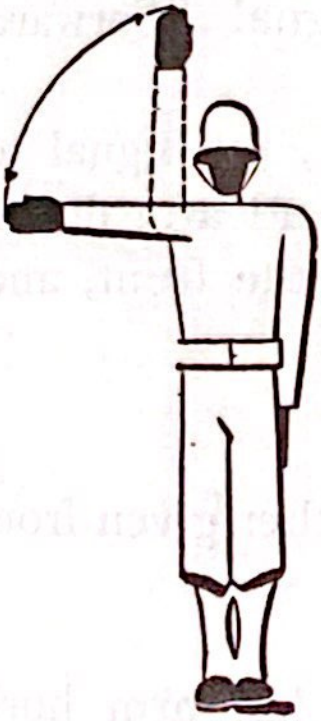
FORWARD MARCH



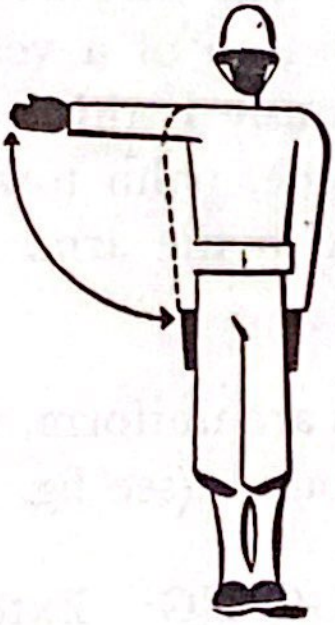
STOP ENGINES



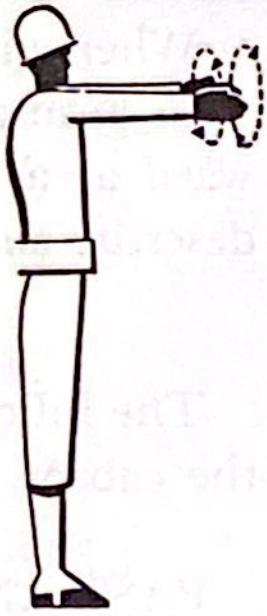
DECREASE SPEED



MOUNT



DISMOUNT



TURN AROUND
SIMULTANEOUSLY

REPORT WHEN READY TO START

Extend arm vertically, fingers extended and joined.

INCREASE SPEED

Carry closed fist to shoulder and thrust it upward several times to full extent of arm.

MOUNT

Extend arm horizontally at side, palm up, and wave it upward several times.

DISMOUNT

Extend arm horizontally at side, palm down, and wave it downward.

TURN AROUND SIMULTANEOUSLY

Extend both arms horizontally toward drivers and describe small vertical circles, then signal "Forward March" in the desired new direction.

When given from the cab of a vehicle, the signal to turn around simultaneously is this: Extend arm downward at a 45-degree angle, palm toward the front, and describe small circles with the arm.

The following signals are uniform, whether given from the cab or from the ground (see fig. 24):

PASS AND KEEP GOING: Extend left arm horizontally at side and move hand to describe small circles toward the front.

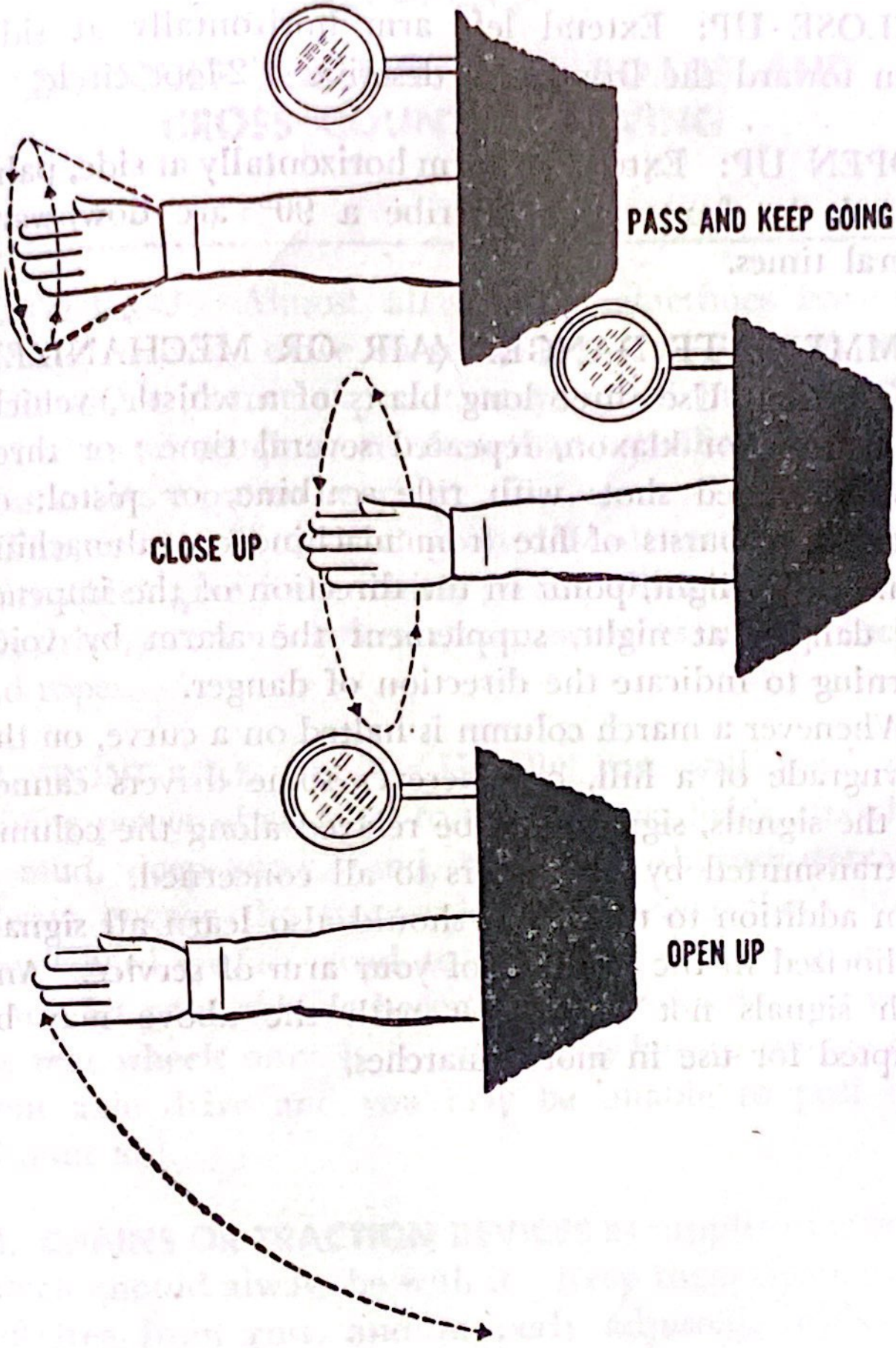


Figure 24. Signals from the cab.

CLOSE UP: Extend left arm horizontally at side. palm toward the front, and describe a 2-foot circle.

OPEN UP: Extend left arm horizontally at side, palm toward the front, and describe a 90° arc downward several times.

IMMEDIATE DANGER (AIR OR MECHANIZED ATTACK): Use three long blasts of a whistle, vehicle horn, siren, or klaxon, repeated several times; or three equally spaced shots with rifle, carbine, or pistol; or three short bursts of fire from machine or submachine gun. In daylight, point in the direction of the impending danger; at night, supplement the alarm by voice warning to indicate the direction of danger.

Whenever a march column is halted on a curve, on the downgrade of a hill, or wherever some drivers cannot see the signals, signals may be relayed along the column or transmitted by messengers to all concerned.

In addition to these, you should also learn all signals authorized in the manuals of your arm of service. Any such signals not in conflict with the above may be adapted for use in motor marches,

CHAPTER 4

DIFFICULT TERRAIN: BAD ROADS AND CROSS COUNTRY DRIVING

62. GENERAL. Almost all drivers sometimes have to use bad roads or drive on snow and ice. But you, as a soldier-driver, must expect that you will have to drive on bad roads much more often than a civilian and drive cross country on no roads at all.

The chief aids to driving on difficult terrain are low gears which give your vehicle great pulling ability, front axle drive, traction devices, chains, winches, snatch blocks, and ropes.

63. FRONT-AXLE DRIVE. Usually you will need the driving power of all axles to cross plowed fields, stretches of mud, deep snow, sand, or similar difficult terrain. Always engage the front-axle drive *before* the vehicle leaves hard surface road to go across difficult ground. If you let your vehicle become stuck while driving with the rear wheels only, it is usually too late to engage the front axle drive and you may be unable to pull out without aid.

64. CHAINS OR TRACTION DEVICES as supplied for your vehicle should always be with it. Keep them clean, oiled and free from rust, and properly adjusted, ready for immediate use whenever you need them.

Always install your chains or traction device before you enter the ground on which you think you will need them. But don't put them on too soon or keep them on when the need has passed. Using them without reason wears them and may also damage roads.

a. Chains. You will find chains helpful in mud, sand, snow, or slush. They have little, if any, value in preventing a sideslip on an icy, or hard and slippery road. They do little good when operating over ice which is so hard that they will not "bite" it.

Here are some general rules for using chains: Install your chains right side out, that is, with the open ends of the cross links out. Inside out they will damage the tires because the insides of the cross links are flat and the outsides are sharp. Adjust your chains loose enough to creep but not loose enough to strike the body of the vehicle or be pulled off. Fairly loose adjustment will make the chains give better traction and will wear the tires less than a tight adjustment.

When you lay the chains out on the ground before running the wheels on them, have the clasps toward the rear. Otherwise, they may loosen and come off.

If you are installing chains on a vehicle with an all-wheel drive, you should put at least one chain on each wheel, single or dual, to prevent unnecessary strain on the driving mechanism.

When you have only one chain for a dual wheel, you should install it on the outside tire.

b. Traction devices, if you have them, are useful for giving your vehicle many of the cross-country abilities of

a half-track tractor. Make sure that you know just how to install them.

If you cannot tighten an individual-wheel traction device enough to prevent the wheel from slipping inside it, chain the device to the wheel.

When you apply traction devices on a 6 x 6 truck, it is usually preferable to use an oval-band coupling around the middle and rear wheels rather than individual devices on each of those wheels. This makes your truck a half-track vehicle with exceptionally low ground pressure so it will not sink in easily. (See fig. 25.)

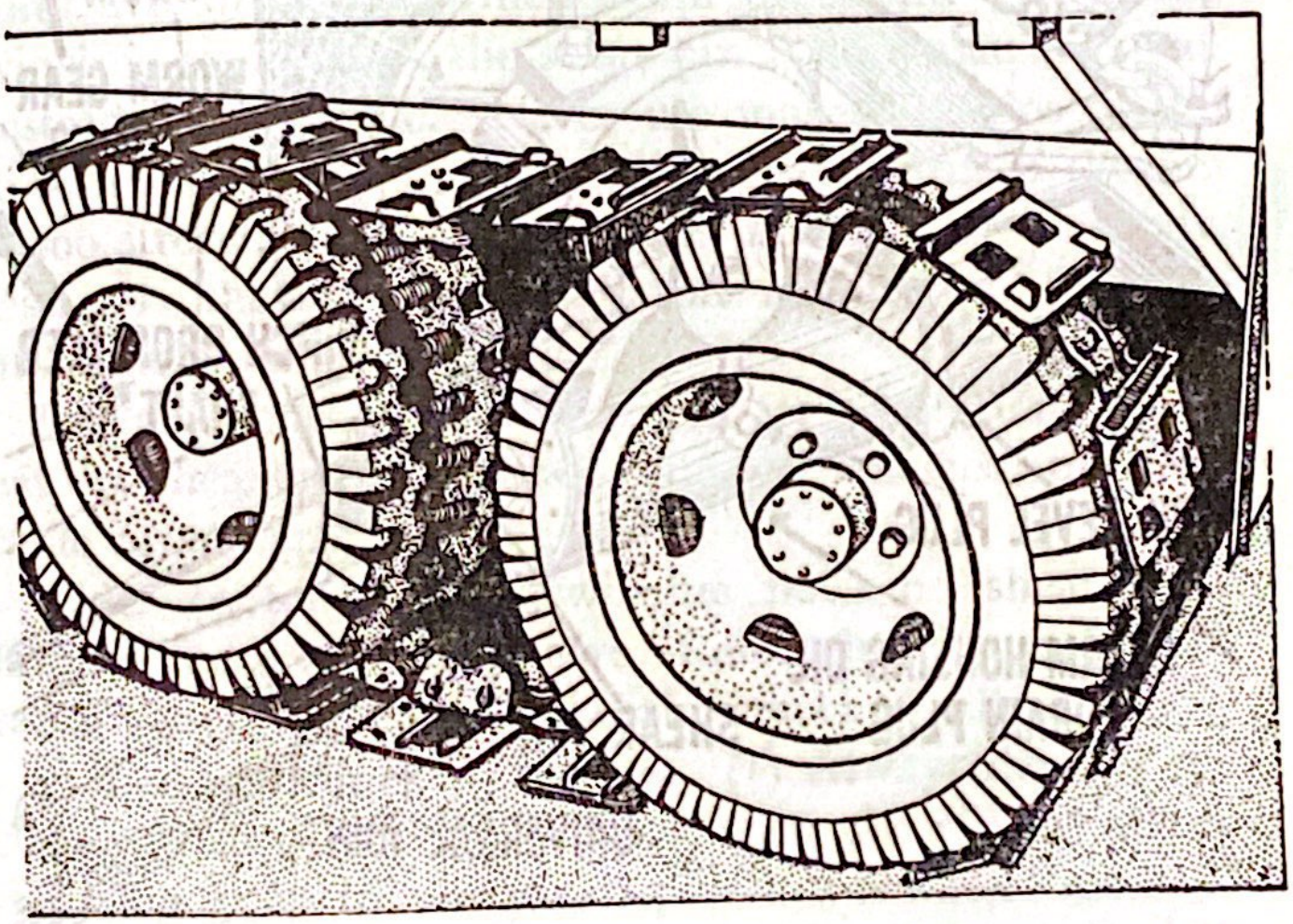


Figure 25. Oval-band coupling traction device.

65. WINCHES—USE THE WINCH PROPERLY. **a. Don't abuse it.** It takes a lot of experience to understand completely the uses of the winch and the principles of rigging which are involved in its use. If you are not thoroughly familiar with winches, therefore, it is best

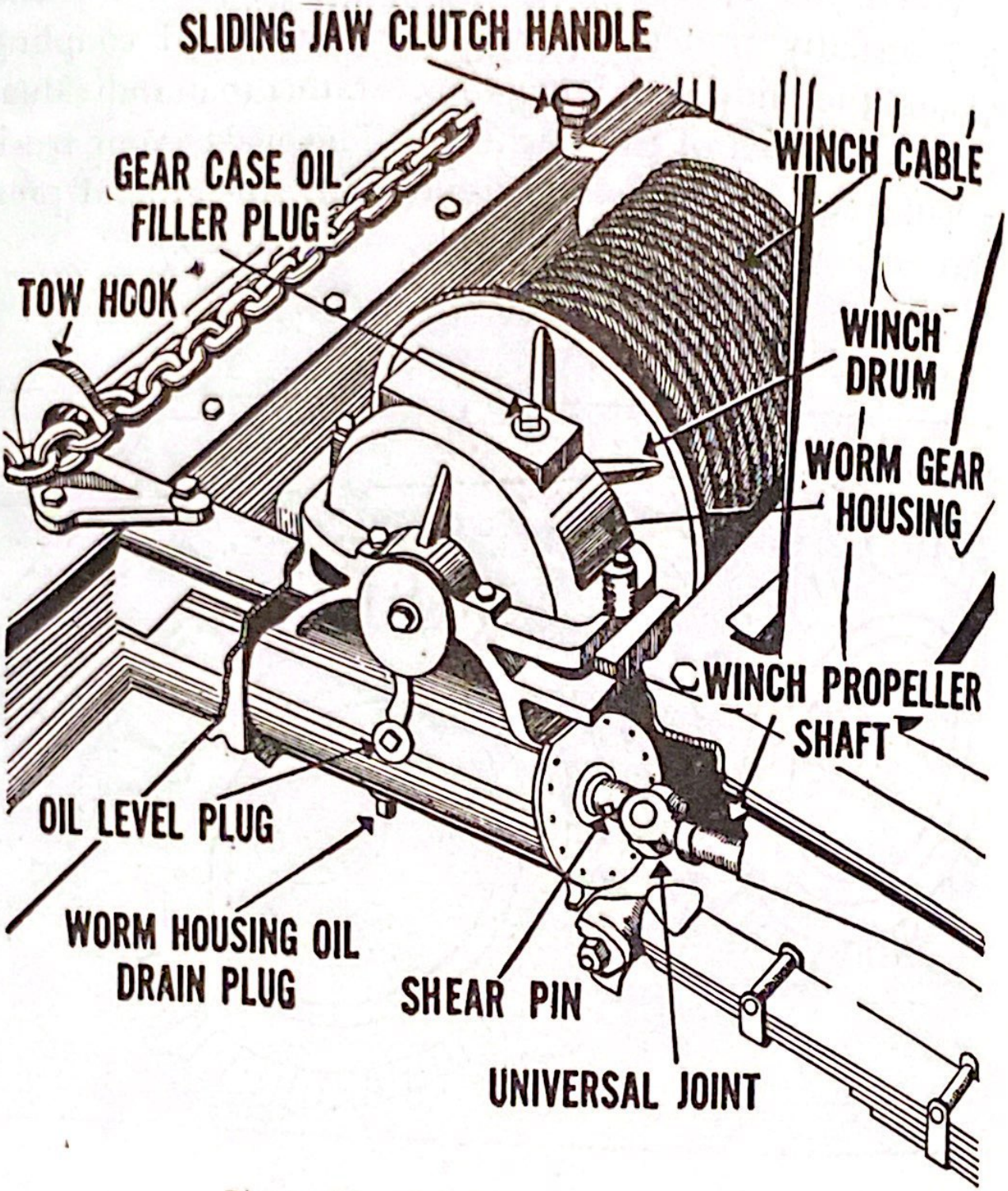


Figure 26. A front-mounted winch.

for you to depend upon a senior for direction and supervision, except in emergency. A few fundamentals as to winches are given here. Consult the maintenance manual of your vehicle for the details of how to operate and maintain your particular winch.

b. Look out for snapped cables. When a strong steel cable is tightened it may break, flying back like a whip with force enough to kill a man or to cost him his leg. Everybody should therefore stand clear before the winch cable is tightened. All newer front-mounted winches are provided with shear pins (fig. 26) as a precaution against overloading the winch or snapping the cable. The shear pin is located in the yoke of the universal joint that drives the winch worm-gear shaft. When the winch is overloaded, the shear pin is supposed to break instead of the cable. Never use makeshift pins of unknown strength to replace broken shear pins; if the pin is too strong, the cable may snap and injure somebody. Use only the manufacturer's soft metal pins, made to fit the hole without forcing.

Don't depend on the shear pin for protection. Even with a shear pin, a kinked, frayed, damaged, or weak cable may snap.

Older center-mounted winches have no shear pins. Handle them with great care. Remember that a broken cable whipping through the air can be deadly.

c. Tips on winch operation. (1) Always depress the clutch pedal of the vehicle (disengage the clutch) before changing gears in the winch power take-off. Figure 27 shows the positions of the power take-off lever for dif-

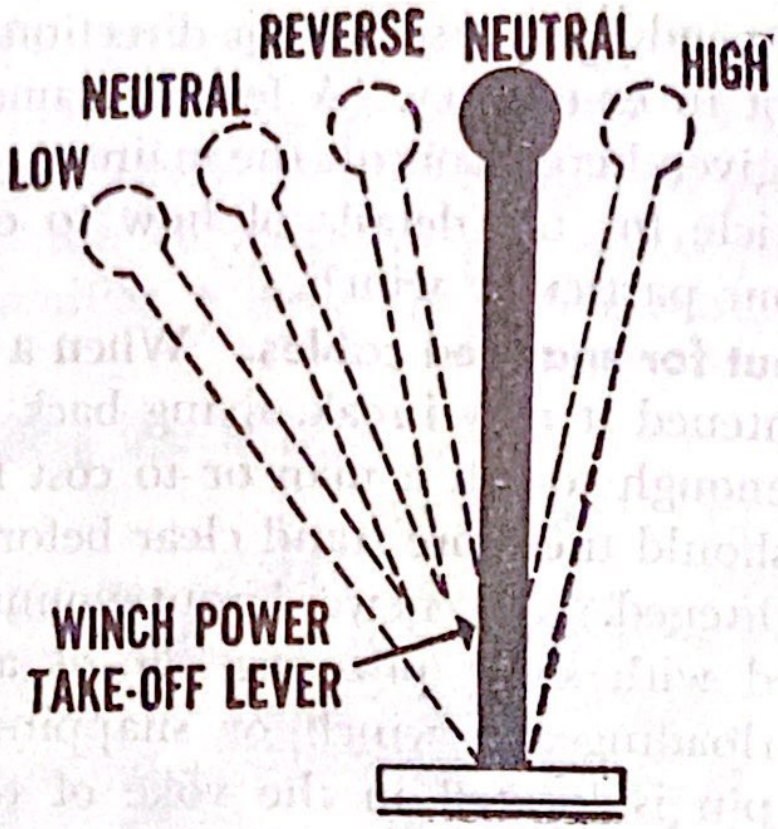


Figure 27. Winch control lever in cab.

ferent winch speeds of one make of truck. *Always consult the winch and power take-off name plate in cab of your particular truck for the correct lever positions,* as these positions vary with different makes of trucks. When the winch is not being used, lock the lever in neutral position with the hinged latch on the floor board.

(2) Do not operate the winch with an engine speed exceeding 1,000 rpm (about ¼ throttle).

(3) Use the high speed of the winch for light loads and for reeling in the cable. Use the low speed for heavy loads. The winch can be stopped almost instantly by disengaging the vehicle clutch.

(4) Pay out the cable by disengaging the sliding-jaw clutch, controlled by a lever (fig. 26) and pulling out the cable by hand. Use the reverse gear only for easing the strain on the winch cable or for lowering a load downhill.

(5) *Never race the vehicle engine when winding the winch cable, especially when it has a light load or no load.*

d. Prevent cable abuse. Never bend the wire cable at a sharp angle. In taking up slack, straighten out all kinks and twists. Do not tie knots in the cable except for emergency repair. Do not rig the cable around an angle or permit tractors or vehicles with metal tires to run over it. These forms of abuse flatten the cable, expose the manila hemp core, and permit water to enter, causing internal rust and weakening the cable.

Do not wind the cable on the winch drum rapidly or without a load because it may kink.

After using the winch, have one person, or preferably two, pull back on the cable while it is wound slowly and evenly on the drum. Your assistant stows the chain by passing it through the left tow hook and across the bumper and hooking it to the right tow hook. Turn the winch slowly until your assistant signals you that the chain is taut. Stop the winch immediately by depressing the clutch pedal. Then put the power take-off lever in neutral and lock it in place with the hinged latch.

e. Prevent rust. Keep the winch cable coated with engine oil to prevent rust.

66. REDUCING STRAIN ON A WINCH RIG. a. Anchor the vehicle. When using the winch for a difficult pull, hold your vehicle in place by the brakes or wheel blocks, or anchor it to a tree ground anchor or "deadman," usually by the pintle hook.

b. Anchor the cable. If there is any choice, select an anchor (tree, pole, etc.) that requires a long winch cable and the least possible angle to pull. Attach the winch-cable chain low on the tree, pole, or stake to avoid breaking it off or uprooting it.

c. Use snatch block. When practicable, do not use your winch for pulling your own vehicle without passing the winch cable through a snatch block secured to the anchor, as shown in figure 28. This rig is much better than attaching the end of the cable directly to the anchor, as the double pull lessens the strain on the cable and eases the jerks. Cable used single for heavy loads is often frayed or broken or otherwise damaged.

d. Pull from front. The winch cable, when under strain, should extend directly to the front, although a slight angular pull to the side is permissible.

If the cable pulls downward at an angle of more than 20° below the level of the frame of the winch-equipped truck, the front axle and tires may be overloaded.

e. Attaching winch rope. There are three methods of attaching winch rope, depending upon equipment available.

(1) Attach a chain or rope to the two tow hooks with a spreader bar to divide the pull equally between the two hooks, and attach the winch cable hook as shown.

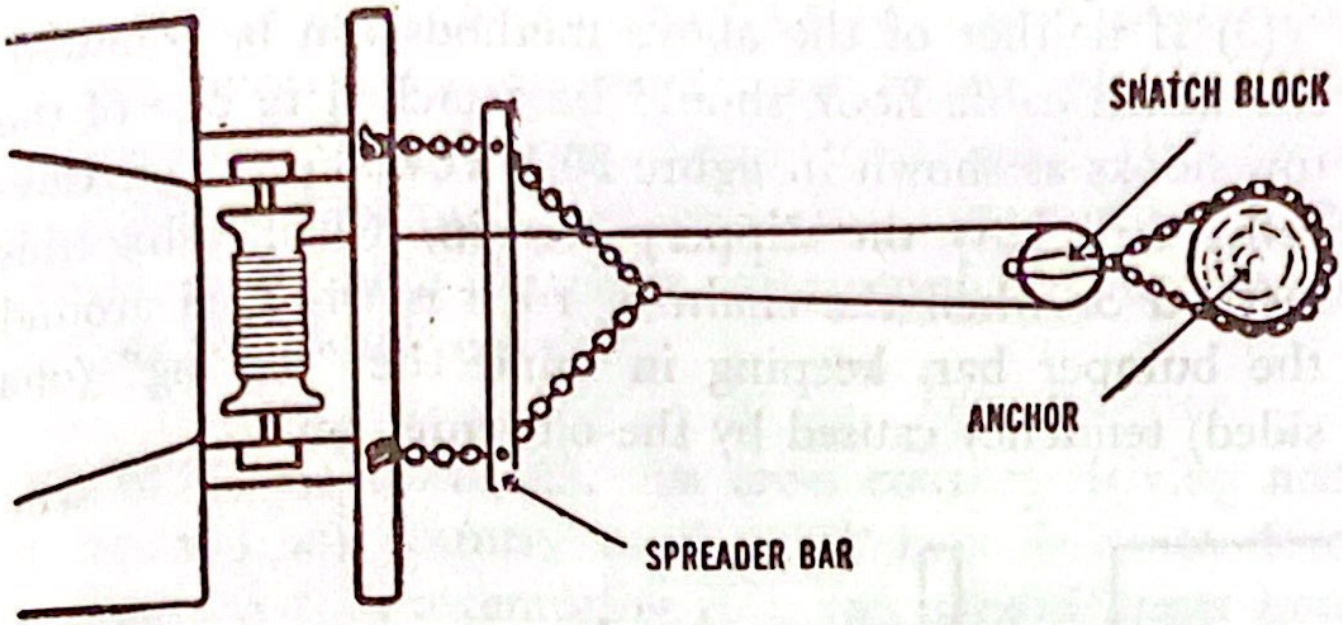


Figure 28. Rig with spreader bar.

(2) If a spreader bar is not available, attach the chain or rope in the following manner: Pass the rope or chain under the bumper bar, up over the side rail, then down under the bumper bar: then attach the rope or chain to the tow hook or to itself (fig. 29). Steel cable should not be wrapped around the bumper bar, as the cable would be deformed or broken.

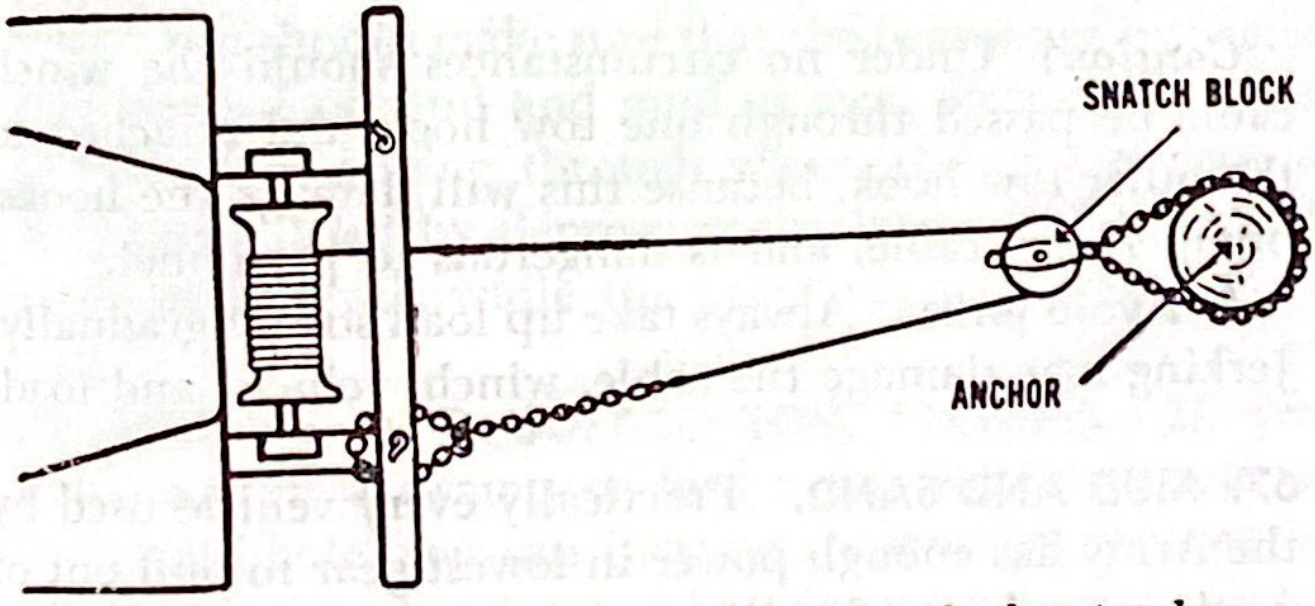


Figure 29. Rig with chain passed under the bumper bar.

(3) If neither of the above methods can be followed, the winch cable hook should be attached to one of the tow hooks as shown in figure 30. Tow the vehicle carefully, especially on slippery terrain, when using this method or when the chain or rope is wrapped around the bumper bar, keeping in mind the "slewing" (one sided) tendency caused by the off-center pull.

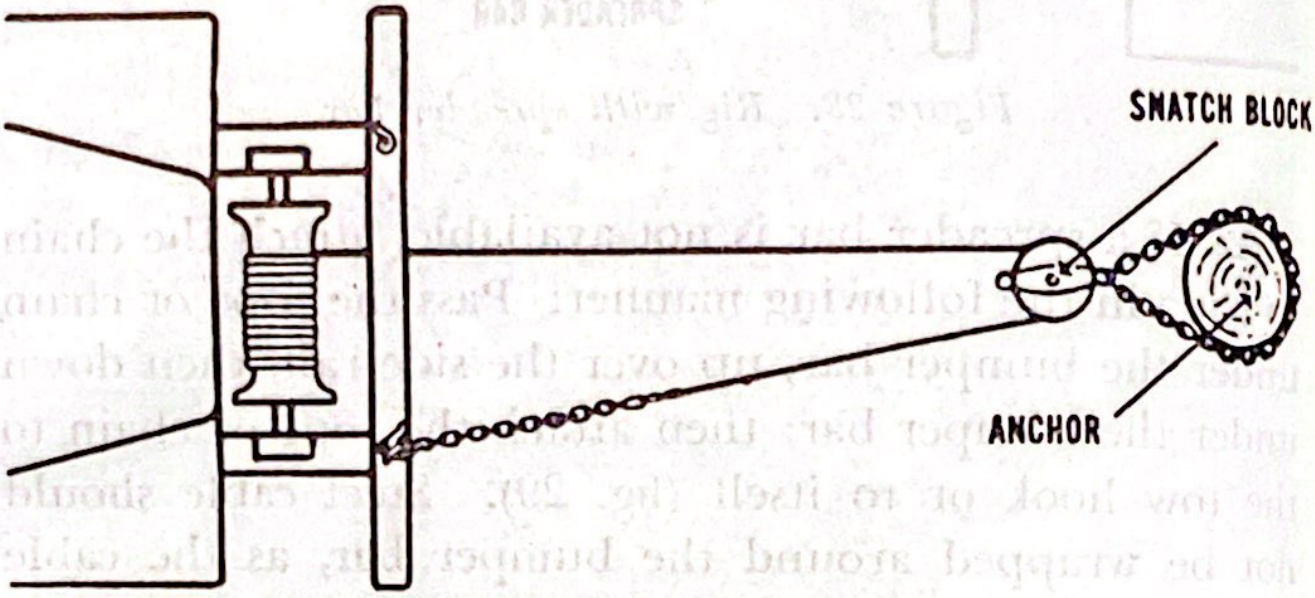


Figure 30. Rig without spreader bar.

Caution: Under no circumstances should the winch cable be passed through one tow hook and attached to the other tow hook, because this will damage the hooks, bumper bar, cable, and is dangerous to personnel.

f. Avoid jerks. Always take up load strains gradually. Jerking may damage the cable, winch, vehicle, and load.

67. MUD AND SAND. Practically every vehicle used by the Army has enough power in lowest gear to pull out of mud or sand, *provided it gets traction.* Pull out slowly

in low gear. If you can't pull out, it is best to use your winch, or get aid from another vehicle on solid ground. Don't spin your wheels. Don't "rock out." It puts a strain on your vehicle and, even if you get out, probably digs deeper so that the going will be even tougher for the vehicle which follows you.

68. FORDING STREAMS. In cross country driving and sometimes on country roads, you may have to ford streams. Before attempting this, you should know how deep the water is. Measure depths and condition of roadway if necessary. If it is not deep enough to wet your vehicle's electrical equipment the vehicle can cross the ford under its own power, *provided, of course, that it is otherwise passable.*

Cross slowly, driving in lowest gear. If the ford is deep enough for the spinnig fan blades to catch water, loosen the fan belt before crossing. Otherwise, they may throw water over the electrical units.

If you drive your vehicle much in sandy or muddy water, you should make sure that the brakes are inspected and cleaned of sand and mud as soon afterward as possible. After driving through water, the brakes may be tested and dried by depressing the brake pedal momentarily at intervals while the vehicle is in motion.

69. SWAMPS AND SOFT-BOTTOM STREAMS. If you have to cross a swamp or ford a soft-bottom stream or deep mud hole, you can increase the ground support by placing boards, brush, or other similar materials under

the wheels or tracks. Pine is not well suited for this purpose. The bark wears off and leaves a slippery surface. Oak gives good results. Someone will have to hold this material down until at least one vehicle has passed over and forced it into the mud.

70. STEEP GRADES. **a. Steep downgrades.** Make sure that your lowest gear is engaged before attempting to drive down any grade over 30 per cent.

b. Steep upgrades. Before driving up a steep grade, also make sure that the lowest gear is engaged. (See fig. 31.) If the traction is poor you may have to use a winch. With the aid of a winch cable fastened to a tree or to a "deadman," or to other vehicles, your vehicle can pull itself up the grade. If your truck has no winch, you may get help from one that has. In the absence of a winch, ordinary block and tackle may be used.

71. DRIVING OVER HILLTOPS. When you drive over the top of a hill, if there is a sharp descent on the other side and you have too much speed, your front wheels may jump off the ground and come down with a bang. This is pretty tough on your vehicle and may cause you a lot of trouble. Pass over the crest of the hill slowly so that it will not happen.

72. CROSSING DITCHES. You can cross small shallow ditches easily merely by shifting into a low gear and proceeding slowly. Enter obliquely, so that one wheel leaves the ditch as the other wheel on the same axle enters it.

In crossing deep ditches, engage the lowest forward

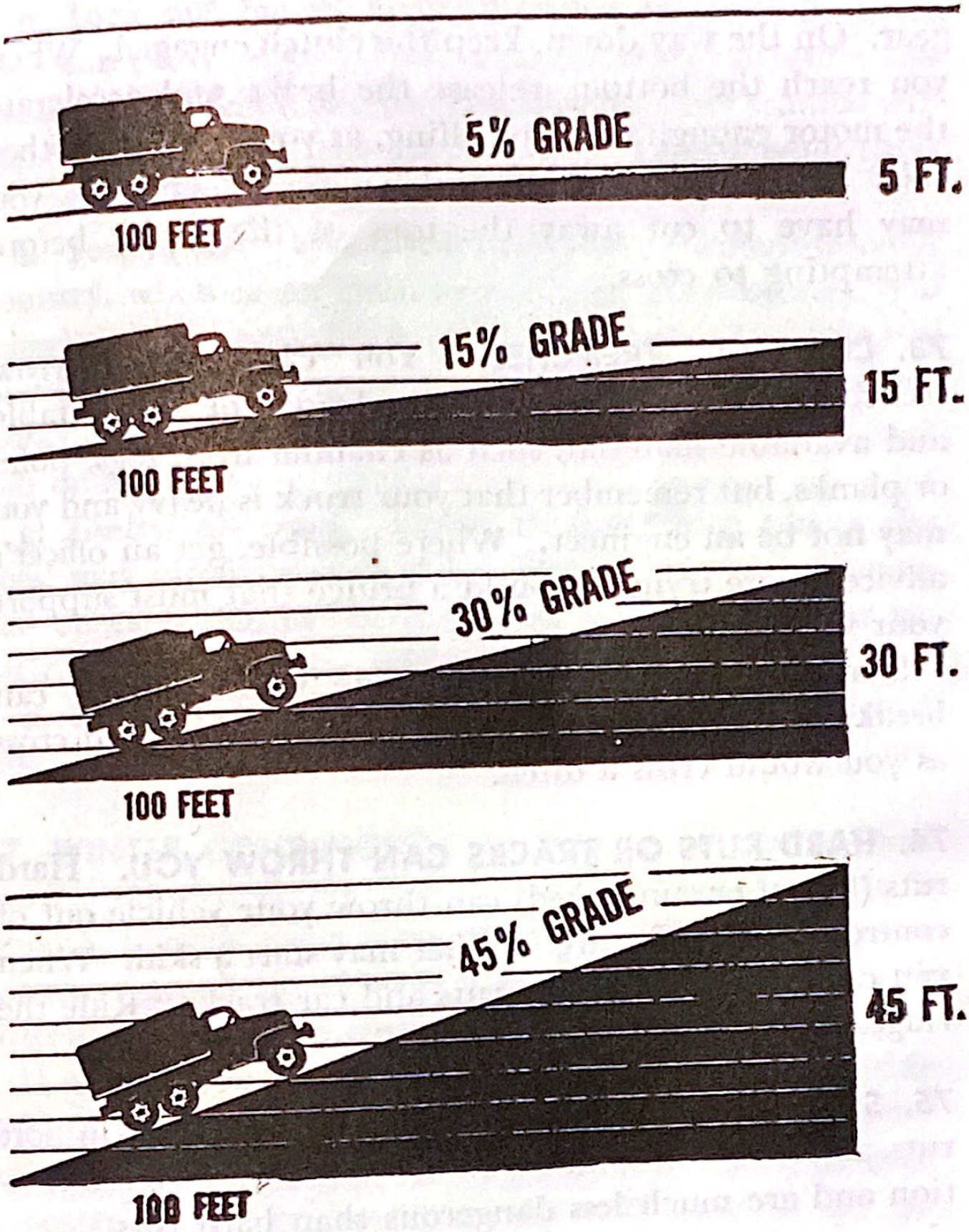


Figure 31. How steep is the grade?

gear. On the way down, keep the clutch engaged. When you reach the bottom, release the brake and accelerate the motor enough to keep rolling, as you go up the other side. If the ditch is deep and has very steep sides, you may have to cut away the tops of the banks before attempting to cross.

73. CROSSING TRENCHES. You can cross narrow trenches by building a makeshift bridge of any suitable and available material, such as channel iron, logs, poles or planks, but remember that your truck is heavy and you may not be an engineer. Where possible, get an officer's advice before trying to build a bridge that must support your vehicle.

Sometimes, especially with wide trenches, you can break down the sides, partly fill in the bottom and cross as you would cross a ditch.

74. HARD RUTS OR TRACKS CAN THROW YOU. Hard ruts (frozen or sun baked) can throw your vehicle out of control or pull off a tire. Either may start a skid. When you can, keep out of hard ruts and car tracks. Ride the ridges.

75. SOFT RUTS. It is often all right to drive in soft ruts, in loose soil, sand or mud. Soft ruts increase traction and are much less dangerous than hard ruts.

76. WOODED COUNTRY. Woods help to screen you and your vehicle from air observation, but they also present certain problems which you must consider.

a. Look out for stumps. A tree stump which is too high can cause serious damage to the axles and other low parts of your vehicle if you straddle it. Any stumps will injure your tires if you scrape them. Try to avoid these dangers when in woods or cut woods.

b. Low limbs. When you must drive through wooded country, whether on country roads or cross country, low hanging limbs may break your top bows. It is usually best to remove the top and all top bows for field operation. Keep alert and remove limbs which may hit your cab or load.

c. Timber on road. Heavy timber which blocks the road may often be crossed by piling dirt or other material on each side of the timber so as to permit your vehicle to climb up one side and down the other.

d. Rocks and boulders present the same difficulties as tree stumps and you should take the same precautions.

77. WINTER CONDITIONS. a. Driving on ice or hard snow. On ice or on hard snow, particularly if it is smooth, there is great danger of skidding or slipping and a serious accident. The best way to be safe is to drive with great care. Go slowly.

If you are on a road which slopes toward the side ditches, it may be helpful to straddle the crown in order to avoid sliding to the side (fig. 32). Obviously in such a center-of-the-road position you will have to be extremely careful to avoid crashing into other traffic.

On slippery ground, avoid rocks, car tracks, and other objects which might throw your vehicle sidewise and

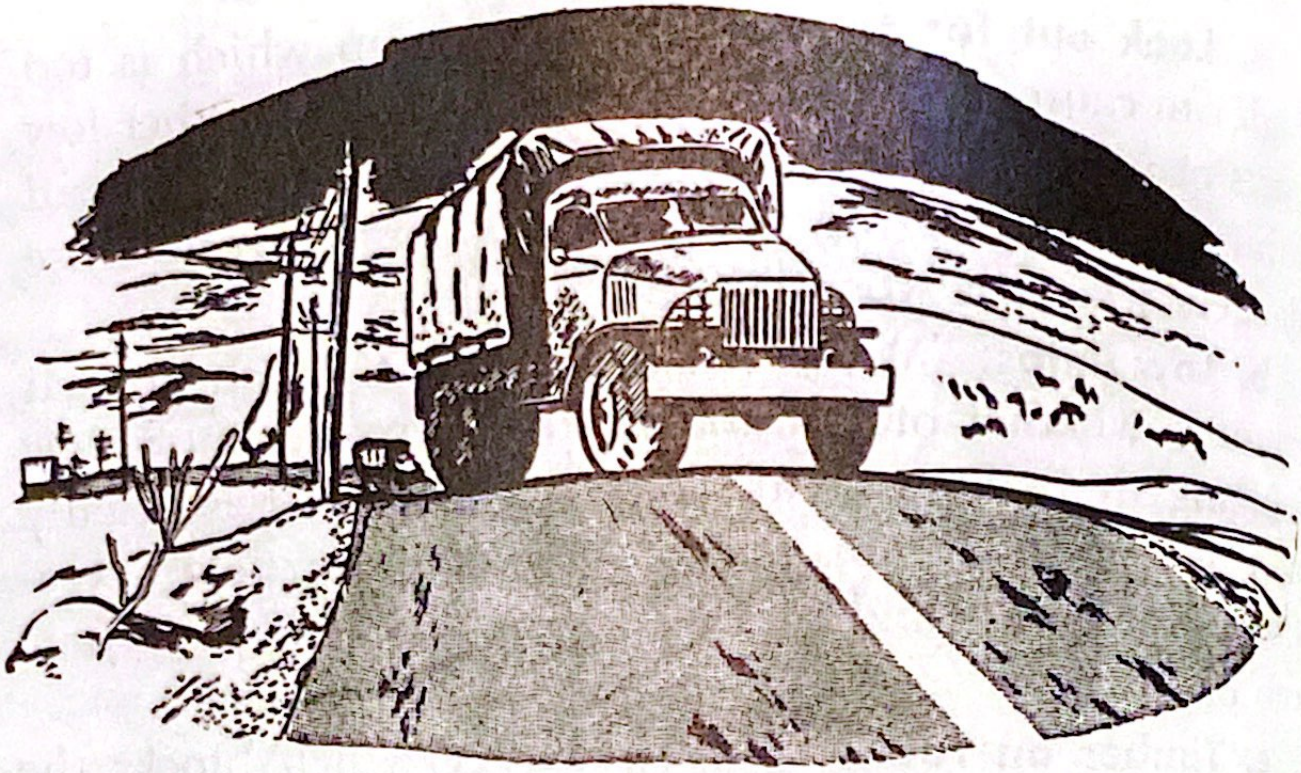


Figure 32. Riding the crown of the road.

start a skid. Avoid sudden stops, sudden turns, and sudden speeding up or slowing down. Any sudden change in the vehicle's momentum may start your vehicle slipping and skidding.

b. Lower tire pressure on ice, hard snow, or sand. By letting some of the air out of your tires, you increase their area of contact with the road and get more traction. This is often helpful when driving on ice, hard-packed snow, or sand, but you should do it only in an emergency.

If you have lowered the pressure in your tires, be sure to pump them up to full pressure just as soon as the need for low pressure is over.

c. Starting on smooth ice or snow. When starting on smooth ice or snow, shift into second or third gear, rather than low, engage the clutch gradually, and do not

accelerate the engine more than is necessary to keep it from stalling. The wheels will spin less than if you used low gear and you will be more likely to start.

d. Cooling system. Be sure you have enough anti-freeze to prevent your radiator from freezing. If not, you may have to drain the cooling system when your vehicle is not in use, or run the engine sufficiently to keep the coolant from freezing. A cardboard or similar radiator cover will help to prevent freezing.

e. Oil. Remember that oil thickens in cold weather. It will make the engine harder to start. Sometimes towing or pushing your vehicle, with the gears and clutch engaged, may be a better way to start your engine than running your battery down by excessive cranking.

Under extreme arctic conditions with temperature many degrees below zero, it may be necessary to run your engine frequently day and night to keep the oil fluid enough; sometimes it may be desirable to drain the oil from the crankcase, and keep it in a warmer place while the vehicle is not in use.

f. Use of blanket. Blankets or other covers will help to keep the engine warm after operation and aid it in warming up in starting.

g. Brakes. Wet brake linings can freeze to the drums when the temperature falls below 32°. Frozen brakes are difficult to release. Therefore, avoid leaving brakes set overnight under these conditions. If necessary, block the wheels instead, or leave the vehicle in gear.

h. Parking. Remember that if you park your vehicle in mud or slush, the wheels can be "frozen in" when it

gets colder, causing you hard work and delay. If freezing is likely, try to park in a dry spot. If you can't find a dry spot, make one by placing any suitable and available dry material on the ground, or dig down and clear the mud and slush from under your vehicle. If wheels are "frozen in" do not attempt to drive away to brake loose. This may seriously weaken and damage tires at a point where adherence through freezing has taken place. Use the tools of your pioneer kit to free the tires. Be careful not to damage the tire sidewall.

78. DRIVING IN DESERTS, SAND, OR DUST. Desert or desert-like driving, with its sand storms and dust clouds, presents special difficulties, both from difficult terrain and dirty air.

a. Deflate tires for better traction. When the sand is soft and the going hard, you can get greater traction by deflating the tires so as to get slightly more surface in contact with the ground. Deflating them too far, however, injures the tires and should be avoided. Be sure that the tires are not kept underinflated any longer than is necessary.

b. Carburetor air cleaner. This is a device for cleaning the air before it goes into your carburetor. If the outside air is full of dust and sand, the air cleaner will soon become overburdened and dirt may enter and damage your rings, pistons, cylinders and valves. There is a quantity of oil in the lower base of the unit to collect the heavy particles which fall out of the air before it passes through an oil-soaked wire mesh to take out the

finer particles When a vehicle is operating in sand and dust storms the mesh must be kept clean and the oil level must be maintained. This means checking the oil level *every day* and cleaning the mesh *every day*. Under extremely dusty conditions it may be necessary to change several times a day. If you do not know how, ask your noncommissioned officer to show you.

c. Breather-pipe-cap air cleaner. The cap which you remove to pour oil into the crankcase contains an air cleaner also. When it is very sandy or very dusty, this air cleaner must be cleaned daily or as frequently as needed. Remove; wash in dry-cleaning solvent, diesel fuel oil, or other suitable cleaning agent; soak in oil; and reinstall.

d. Oil filter. Your truck contains an oil filter which removes grit or other foreign particles from the oil. It is important, therefore, that filters be drained and the cartridge changed at the mileage or time intervals prescribed by War Department Lubrication Orders and Technical Manuals. It is particularly important that you examine your oil filter frequently.

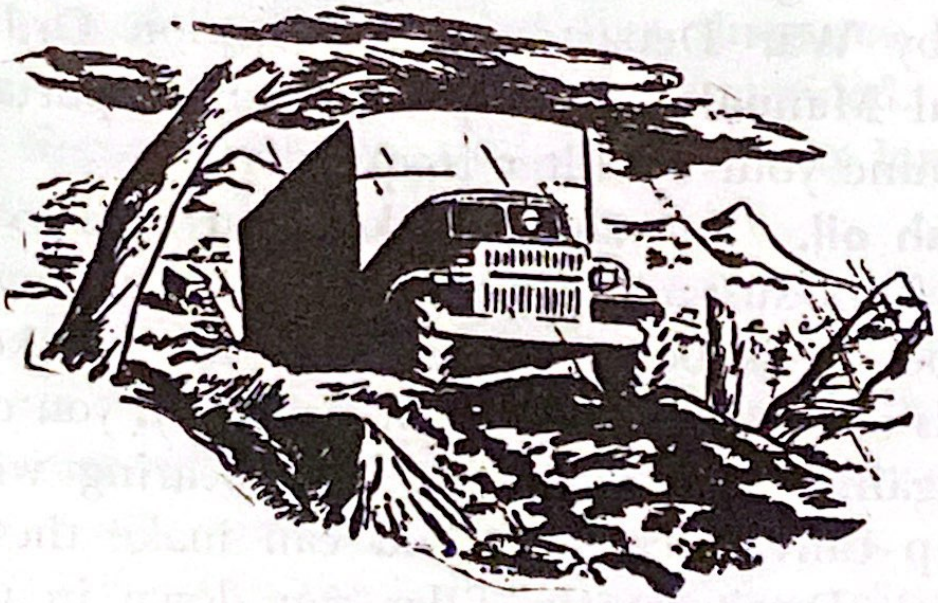
e. Fresh oil. You should take great care to protect clean oil from dust and sand in the air at all times, especially when it is being poured into the crankcase, or when it is otherwise exposed. If necessary, you can protect it against dust-bearing or sand-bearing winds by setting up canvas screens. You can make these from tarpaulins. Don't set the filler can down in the dirt while you open the hood. Keep measures and containers clean.

f. Excessive heat. When driving in extremely hot weather, do not remove the sides of the hood because this reduces the efficiency of the fan. If the engine overheats, consult the officer or noncommissioned officer in charge of your unit.

Keep your radiator free of bugs, grass, leaves or anything else that clogs the air spaces.

Ask your noncommissioned officer about any plate or similar obstruction which cuts off air and keeps the radiator from cooling effectively. Insignia plates on radiators not only reduce the cooling effect but may give information to the enemy.

Watch your fan belt carefully. Be sure that the fan is operating properly with the belt at proper tension—not too loose and not too tight.



CHAPTER 5

SAFE DRIVING IN WARFARE OR MANEUVERS

79. THEATER OF OPERATIONS. In war, the area in which a military campaign is conducted is called a "theater of operations." Here enemy action and unusual emergencies add new hazards to those which you normally face when you drive a motor vehicle.

Some men get the idea that because war involves dangerous acts, it is "smart" to be reckless all the time under war conditions.

Quite to the contrary, the more we suffer by enemy action, and the more we are compelled to take risks, the more we need to avoid losing men and property through carelessness or recklessness. A hero takes risks when he hopes to gain a worthy objective; only a fool takes risks needlessly.

80. SIMULATED WAR CONDITIONS. Many of the tasks which we must do in a theater of operations call for experience and skill—acquired only by practice. To get that practice we hold field exercises or maneuvers to simulate, or pretend, war conditions.

In these, also, some men get the idea that because they are pretending that war conditions exist, they should be reckless. These men too are wrong.

Armies on maneuvers, in war or peace, do not actually try to kill the soldiers of the "enemy" army. They do

not actually try to destroy the "enemy's" equipment or supplies. In fact, they take care to see that these losses do not occur.

In the same way, even though maneuvers may require you to do things which involve some extra risk, such as "blackout" driving at night, there is all the more reason for you to be careful. Take no *unnecessary risk.*

81. SPECIAL TRAFFIC REGULATIONS. In a real or imaginary theater of operations, and elsewhere if needed, you will find special traffic regulations, usually including a traffic "circulation plan."

These special regulations vary greatly. An attempt is made to have as few of them as possible. However, the greater the traffic and the fewer and poorer the roads, the greater the need for special plans to avoid confusion, delays, and accidents.

Under these regulations, military police are stationed at crossroads and junctions; many signs are posted giving special information; many roads are limited to one-way traffic, others have traffic moving only in one direction during certain hours and only in the opposite direction during other hours.

You may find that the traffic circulation plan at night is entirely different from the one used by day.

If there is much enemy air activity (real or simulated), you may find that your outfit, instead of proceeding as a unit, sends out trucks individually at intervals. You may therefore be given a copy of a circulation map showing just which roads you may use, and when. Then you

will be very much on your own.

You may find that the roads are congested with troops marching on foot, with artillery, or even with civilian refugees moving to the rear. Certain roads are usually reserved for the artillery at stated times.

You may find that the right side of the road has been reserved for troops marching on foot, and that vehicles are required to keep to the left; or, sometimes, the exact reverse may be true.

82. OBSERVE AND COMPLY WITH ALL REGULATIONS. Whatever the special regulations may be, they are all made to insure that all troops and all supplies *get there safely and on time.*

If you do not comply with some of these special regulations you may cause accidents and delay. Delay may interfere with the tactical operations, thus causing unnecessary casualties in action.

Your own safety, as well as the safe conduct of all traffic, demands that you learn all special regulations and carefully comply with them. Stay off roads on which you don't belong.

83. FOREIGN RULES OF THE ROAD. a. Rules differ. In some countries the rules of the road differ from those in the United States. For example, in many nations, including some of our own possessions, it is customary to drive to the left of the road. When United States troops occupy such territory, orders are usually issued stating whether the local rules of the road or our own

will apply. When we have large forces occupying an area, our own customs may be installed, but when our forces are few, compared with the inhabitants or troops of that foreign country, our troops will probably follow local customs.

b. Foreign customs create a hazard. Regardless of whether the driving customs of the United States or those of the foreign country are in effect when you are on duty abroad, the difference between them creates a hazard. It is hard to break long-established practices which have become almost habits.

If the foreign customs are in effect, you will have to keep constantly alert to avoid absent-mindedly doing as you would in the United States.

If the United States customs are put into effect, local drivers may forget and revert to their own practices.

In either case, you must keep constantly alert to avoid accidents due to the difference in rules of the road.

84. GENERAL SAFETY PRECAUTIONS APPLY. When you are in a real or imaginary theater of operations, or on foreign soil, you will be fully informed of all special regulations which may apply to you.

To be as safe as possible, *apply the same safety measures you would apply in normal driving except those which conflict with the special instructions.*

85. BLACKOUT DRIVING. a. Need for blackout driving. In war, when it is necessary to keep all movements secret and free from enemy observations, motor vehicles must

usually move at night, with safety blackout lights only. This blackout driving requires experience and skill. It is therefore necessary that you practice it in maneuvers so that you can operate in actual war at night without lights.

b. Blackout lamps. Modern military vehicles are equipped with blackout lamps, which make driving in the dark considerably safer. Blackout lamps are placed on both the front and rear of modern military vehicles. They do not illuminate the road, but they do show the position of a vehicle as much as 800 feet ahead of you or behind you, depending on the weather, making it easier to drive in column and reducing the danger of collision, but cannot be seen from an airplane higher than 400 feet.

c. Blackout lamps indicate distances. Blackout lamps are so designed that you can tell when you get too close to the vehicle ahead. The standard U. S. Army lamps work as follows:

(1) *Rear lamps.* These are divided into four parts, which appear to you as one light, when you are 180 feet or more from the vehicle ahead. At distances between 180 and 60 feet (60 to 20 yards) there seems to be two points of light, and at distances of 60 feet (20 yards) and less you see four points of light (see fig. 33).

One point of light informs you that you are pretty far behind the fellow ahead; two lights assure you, "O. K., you are following at a moderate distance," and four lights scream "LOOK OUT! You're getting too close for blackout driving!"

(2) *Front lamps.* The front lamps are slightly differ-

ent. Each lamp is divided into two parts. When you look at it from a distance of 60 feet or more, it appears to be one light. When you are within 60 feet, you see two lights which warn you, "Look out! That vehicle is getting pretty close."

d. Other blackout lamps. Under the stress of war you may find several other designs of blackout lamps. It

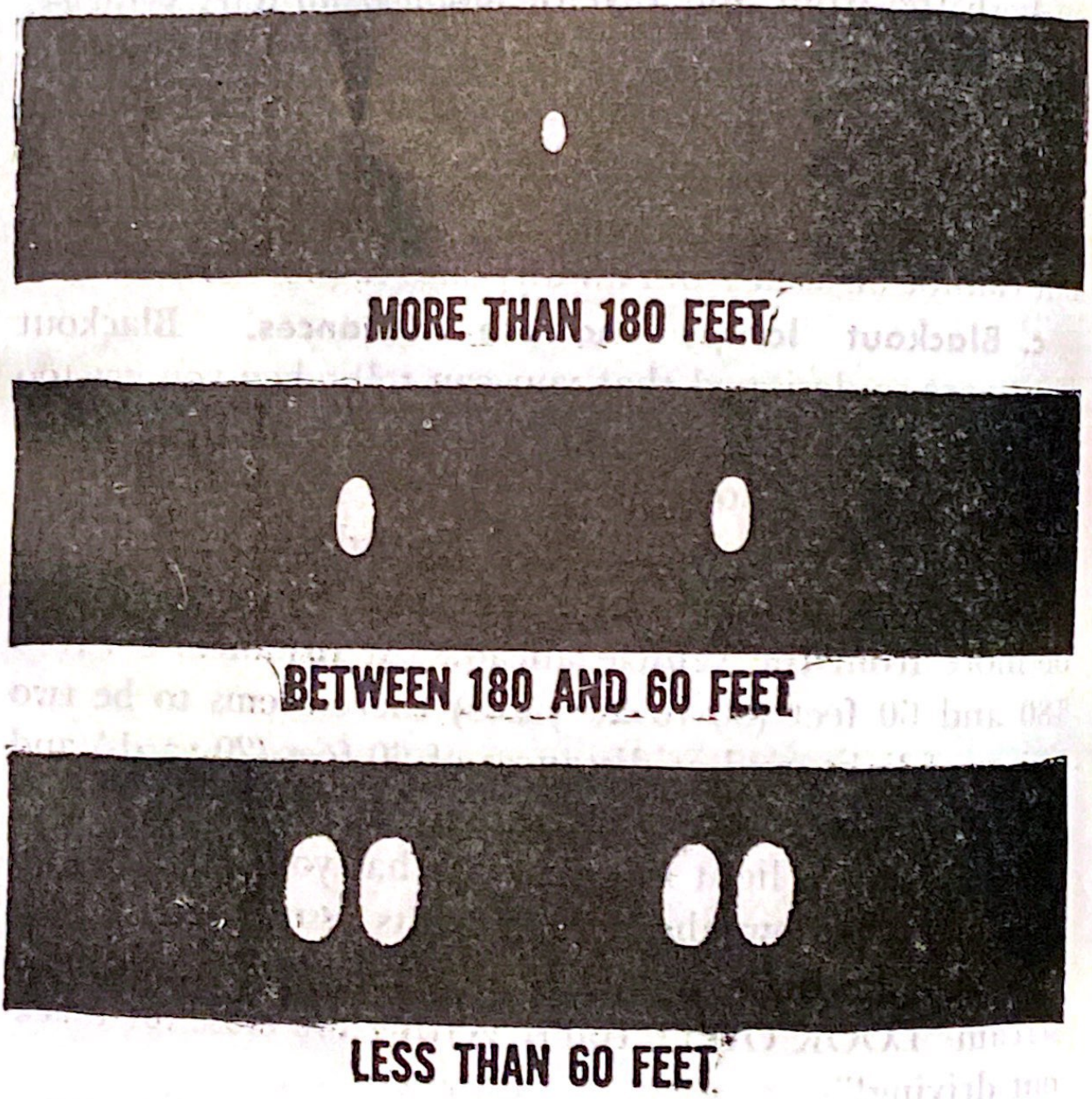


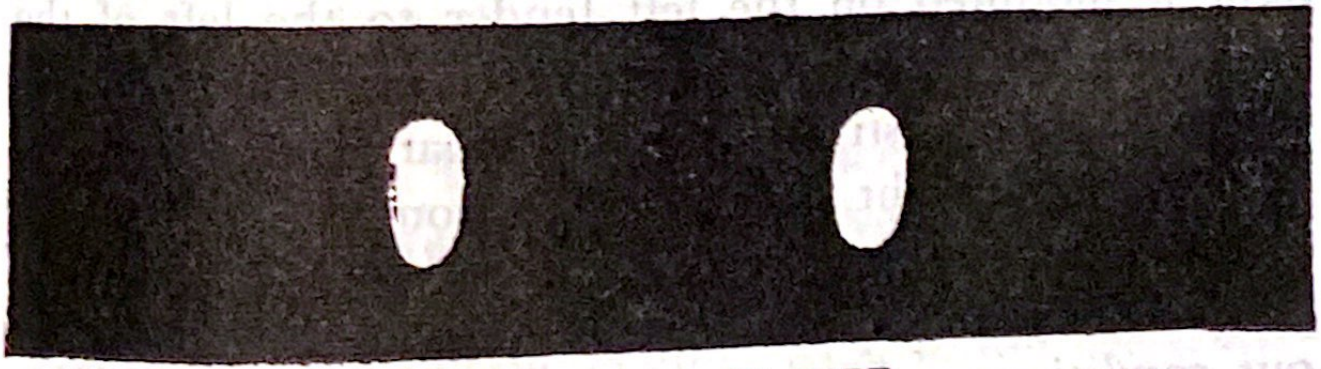
Figure 33. Rear blackout lights.

may even be necessary to use some vehicles not equipped with blackout lights.

e. Know the blackout conditions. The blackout lamps make driving in the dark easier and safer than many people believe. There are also many nights when moonlight is bright enough that you can see rather clearly. However, it is important that you know the exact conditions under which you are driving and act accordingly.

Make it a point to be sure what kind of blackout lamps, if any, are being used and what distances are indicated by their varying appearance.

MORE THAN 60 FEET



LESS THAN 60 FEET

Figure 34. Front blackout lights.

f. Reducing risk in blackout driving. Obviously the first safeguard in blackout driving is greatly reduced speed. When you first attempt blackout operation, therefore, have plenty of room and drive at a crawl.

Watch the rear blackout lights of the vehicle ahead, if you are driving in a column. It will serve as a pilot, because where it has gone safely, you can go with caution. You can see better if you open your windshield.

When practicable, post a man in the rear part of your vehicle to warn the driver who follows, if he comes too close. The warning must be given in a way which conforms with the existing blackout regulations. A screened flashlight might be permitted in the hands of a trained and reliable man. If not, a white handkerchief or some other white object will usually do.

If the vehicle which is following is equipped with forward blackout lights, he will spot it more easily. But even if the vehicle has no lamps, an alert "rear guard" can usually make it out at a reasonable distance, because few nights are totally dark.

g. Blackout driving light. The blackout *driving* light is mounted on the left fender to the left of the headlight. This light is controlled by a push-pull type switch on the instrument panel (marked B. O. Drive) with the main light switch in "blackout" position. The blackout driving light furnishes a diffused light beam to permit limited illumination when driving under blackout conditions.

CHAPTER 6

FOUR HIDDEN ENEMIES

86. FIRE. Every motor-propelled vehicle must be equipped with an approved type of fire extinguisher. If yours doesn't have one, see your noncommissioned officer and get one.

Shut off the engine before refueling. Do not spill gasoline on a hot exhaust pipe.

Water used on a gasoline or oil fire spreads the flame. If you don't have enough fire extinguishers, throw sand or dirt on a blaze of this kind. This will smother it.

Gasoline vapor may catch on fire even when the spark or flame is several feet from the liquid gasoline. Therefore, if fire is near, do not fill a gasoline tank or work on a carburetor or fuel system. This means *no smoking* in any inclosed room containing gasoline, or outdoors within 25 feet of exposed gasoline. If you need light to perform the work, an electric light is the sensible and safe thing to use. Don't use open flame or lanterns.

Oily or greasy rags kept in your vehicle increase the fire hazard. Get rid of them.

Don't spill oil on the engine when filling the crankcase.

Use kerosene, rather than gasoline, when cleaning oil and grease from metal parts of your vehicle.

87. RISKY RIDING. **a. Mounting and dismounting.** When you are transporting individuals or troops, caution the individuals or the officer or noncommissioned officer in charge of the troops that it is unsafe for anyone to mount or dismount from your vehicle except when it is stopped. They should dismount one at a time.

b. Driver's seat. In an emergency you need room enough to act with all the speed of which you are capable. Therefore, be sure that the driver's seat is not crowded. Standard military vehicles have room for only two people on the driver's seat (yourself and one other). To be safe, don't allow any more on the seat.

c. Unauthorized passengers. Do not permit unauthorized persons to ride in your vehicle.

d. Tail gate. When troops or other passengers are getting on a truck, or particularly when they are getting off, open the vehicle's tail gate so that they will be less likely to trip and fall (fig. 35). But don't leave it open. Your passengers or load will be safer if you close the tail gate before starting and so will the tail gate. Make it a practice to keep the tail gate opened while the vehicle is loading or unloading and closed while the vehicle is moving.

e. Keep passengers in safe positions. You may be compelled to drive very close to other vehicles or objects during your trip, or someone may bump you from the rear. Don't let your passengers get hurt. Permit no one to ride with his head, arms, legs, or any part of his body protruding from the sides or rear of your vehicle.

For similar reasons, and also to prevent passengers from

Figure 35. Open tail gate before allowing passengers to dismount.

falling off or being thrown off, permit no one to ride on your running board, fenders, hood, or tail gate.

Warn all passengers not to stand except when your vehicle is halted, because if you start, stop, or turn sud-

denly, or have a collision, they might be thrown off balance and possibly out of the vehicle. Always keep the safety strap hooked while transporting troops.

88. UNSAFE LOADING. a. Load cargo safely. An improperly loaded cargo may shift or fall off. It may even cause a truck to overturn on a curve, in an accident, or on uneven ground.

b. Protruding loads. Whenever possible, avoid loads which stick out over the driver's seat, or beyond the tail of your truck. Loads which stick out over the side, so that your vehicle requires a wider lane than usual, are especially dangerous.

If a load unavoidably extends more than 2 or 3 feet beyond the rear of the truck, mark it on the end so that others will plainly see it. In daylight a *red* cloth at least 12 inches square is preferable; at night, a lighted *red* lantern. Don't use green; it means "all clear" instead of "danger."

89. HOW TO LOAD. To get the best results from your vehicle, its capacity and cargo space must be used efficiently, and therefore you must know something about loads and loading. Except under unusual circumstances, it is not part of your job to load and unload cargoes, but you are responsible for making sure of the following:

a. Do not exceed maximum authorized load. Maximum pay loads and maximum tow loads for road operations as well as for cross country operations, are shown on plates on your instrument panel. Do not permit your

vehicle to be loaded beyond these maximums except in emergencies, and then only by order of proper authority.

b. How to know when you have sufficient load. You do not need to weigh your truck or to know the weight of your cargo in order to judge when it is loaded to the maximum. Learn the position of the rear springs when you know the vehicle is loaded to the authorized maximum. Then when the springs sink below that position, you will know that the vehicle is overloaded or that the springs have become weak.

c. Proper location and distribution of load. To carry its maximum cargo and to do it safely, your vehicle must be correctly loaded. If the load is unbalanced, the vehicle may overturn or at least become more difficult to handle. One loose piece of cargo may release an entire load. You should observe the following principles:

(1) Heavy supplies should be placed at the bottom of the load and evenly distributed throughout the body of the truck.

(2) The cargo should be carefully built up so as to avoid shifting (fig. 36).

(3) If your load is too high, it may cause swaying and danger of overturning, and will make the vehicle hard to handle. Avoid this by keeping the load low.

(4) If your vehicle is not covered, place a tarpaulin over the cargo as a protection against sun, dust, or rain.

d. Make the load secure. A load which extends above the top of the vehicle body should be securely lashed. Two 60-foot ropes will do the job. Lash-hooks or rings are usually provided on the bodies of cargo-

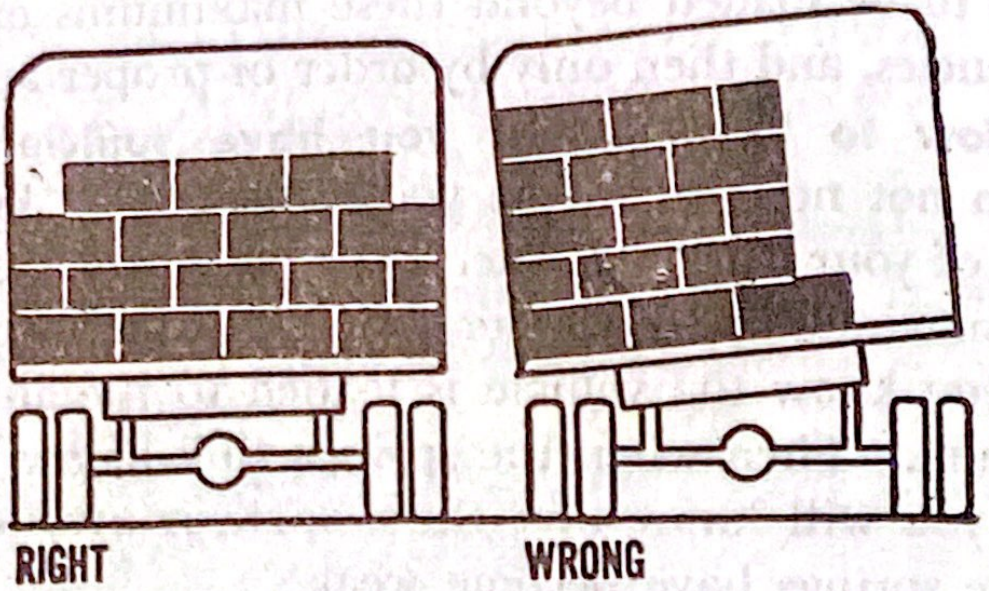


Figure 36. Proper and improper loading.

carrying vehicles. You should lash your load as shown in figure 37.

(1) Fasten the end of one rope to one of the front lash-hooks or rings (A1).

(2) Pass the rope diagonally across the top of the load through or under the second rope support on the other side (A2), and pull the rope tight.

(3) Pass the rope diagonally back across the top of the load to the first side through or under the third rope support on that side (A3) and pull the rope tight.

(4) Continue the process until you have reached the rear of the truck, and then fasten the end of the rope securely (A4 and A5).

(5) Using the second rope, start at the other front corner of the truck and repeat the procedure using alternate lash-hooks or rings (B1–B2–B3–B4–B5).

e. Watch your load in transit. After your vehicle has been loaded, you are responsible for the safety of the load until you have reached your destination and unloaded the cargo. Keep alert to make sure nothing goes wrong.

90. SPECIAL CAUTIONS IN LOADING. a. Ammunition is explosive. Handle it with care. No smoking. Watch out for overloading; ammunition is heavy.

b. Baled goods are best loaded on the bed of the truck. Place large and heavy bales always on bottom.

c. Barrels (with heads or empty) should be loaded on their sides, pyramided.

d. Barrels (without heads or covered with burlap) should be stood upright, on their solid ends.

e. Gas shells. As a precaution against being overcome by leaking gas, carry a gas mask whenever you are transporting gas shells. Remember also that a gas mask

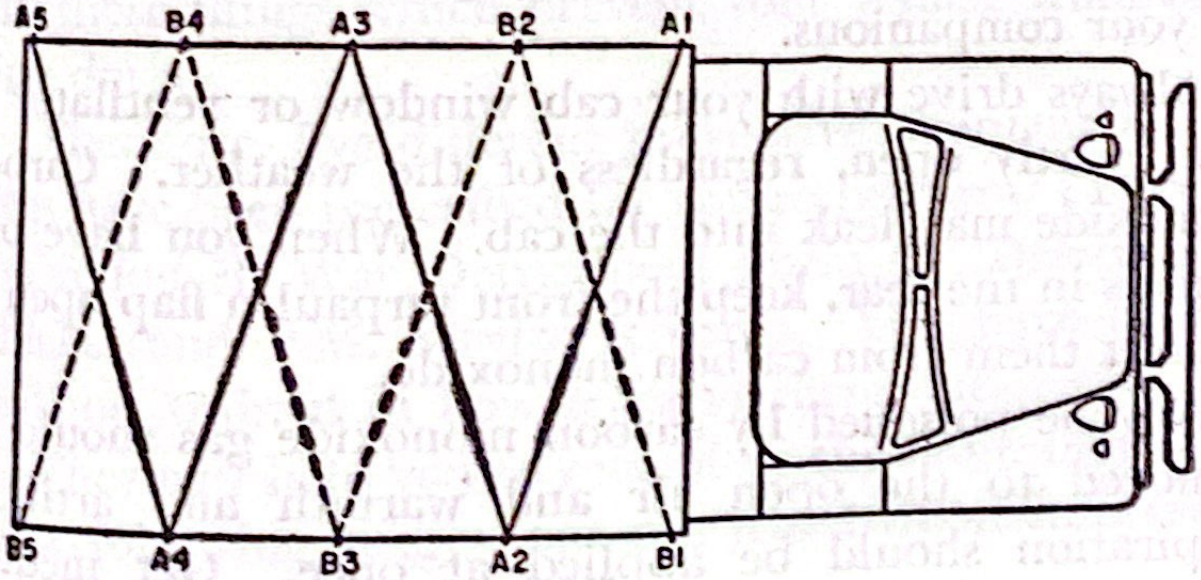


Figure 37. How to lash a load.

is no good unless it is right at hand when you need it and you know how to put it on quickly.

f. Gasoline drums which leak should be reported before loading. If your truck or trailer is carrying gasoline, it should have a chain trailing from a metal part so that it drags on the ground with a few inches to spare. This lessens danger of fire from static electricity.

g. Inflammable rubbish. If your truck is loaded with inflammable rubbish, such as excelsior, paper, or packing material, unload it, if practicable, before parking for the night.

h. Sacked goods should be pyramided and "tied" together by crossing the sacks.

91. CARBON MONOXIDE. Every minute your engine is running, quantities of carbon monoxide—a deadly, odorless, colorless gas—are pouring out of the exhaust pipe. Carbon monoxide is really dangerous; it strikes without warning. If you run a gasoline engine in a closed garage or shop, you may poison or kill yourself or your companions.

Always drive with your cab window or ventilator at least partly open, regardless of the weather. Carbon monoxide may leak into the cab. When you have passengers in the rear, keep the front tarpaulin flap open to protect them from carbon monoxide.

Anyone poisoned by carbon monoxide gas should be removed to the open air and warmth and artificial respiration should be applied at once. Get medical assistance immediately.

CHAPTER 7

PREVENTIVE MAINTENANCE

92. PREVENTIVE MAINTENANCE IS ESSENTIAL TO VICTORY IN WAR. As a soldier, you realize that rapid movement of an army is more important today than ever before in conducting a successful military campaign. The rapid blows of armored forces must be supported by fast-moving infantry and artillery, and these mobile troops must have an equally mobile supply. All this is possible with motor vehicles, provided they keep rolling.

Preventive maintenance is the only means by which motor vehicles can be kept rolling.

As a soldier-driver, you are the foundation upon which all preventive maintenance depends. It is your job to do those things which prevent your vehicle from breaking down.

Therefore, five different preventive maintenance services have been prescribed for you to perform. They will be found in War Department Form 48 (Driver's Trip Ticket and P.M. Service Record). You have been, or will be, trained in how to carry them out.

They will help you to remember the important things. The following suggestions are based upon information found in TM 9–2810.

93. PREVENTIVE MAINTENANCE SERVICE BEFORE OPERATION. Although you inspect and service your vehicle thoroughly after each tour of operation, there is always chance that something might happen to it before you use it again. A slow leak may have deflated one of the tires; an oil or gas leak may have created a fire hazard or left your vehicle without fuel or lubricant; someone might have bumped into it during the night; or there may have been an act of sabotage. For this reason Daily Before Operation Preventive Maintenance Service has been designed merely as a quick check to make sure that the vehicle is still in as good order as you left it. This before operation check is a matter of only a few moments. Many of the items can be covered by a mere glance. But it does give you the satisfaction of feeling confidence that your vehicle remains in the same good condition in which you placed it. It includes—

1. Tampering and damage
2. Fire extinguishers
3. Fuel, oil and water
4. Accessories and drives
5. Air brake tanks
6. Leaks; general
7. Engine warm-up
8. Choke or primer
9. Instruments
10. Horn and W/S wipers
11. Glass and rv mirrors
12. Lamps and reflectors
13. Wheel and flange nuts
14. Tires and/or tracks
15. Springs and suspensions
16. Steering linkage
17. Fenders and bumpers

18. Towing connections
19. Body, load and tarps
20. Decontaminator
21. Tools and equipment
22. Engine operation
23. Driver's permit and form 26
24. Amphibian services
25. During operation check

1. *Tampering and damage.* Check for any injury to vehicle, equipment or armament. Raise hood and check for signs of sabotage such as loosened or damaged accessories or drives.
2. *Fire extinguisher.* Check for tight mounting, full charge, corroded nozzles, and closed valves.
3. *Fuel, oil and water.* Check amounts. Any changes in levels since previous service indicate tampering or leaks.
4. *Accessories and drives.* Check carburetors, generators, regulators, starting motors, fans and shrouds and fuel, water pumps for looseness and for leaks. Check belts for wear.
5. *Air brake tanks.* Check for damage and security of tanks and air line connections. Drain tanks and close petcocks.
6. *Leaks; general.* Check vehicle and ground under vehicle for oil, fuel, water, gear oil, or brake fluid leaks.
7. *Engine warm-up.* Start engine and note whether starter has adequate cranking speed and engages, and disengages properly.

   If oil gauge does not indicate within ten seconds,

stop engine and report. DON'T RACE ENGINE; set throttle so that engine will run at fast idle during warm-up period.

8. *Choke or primer.* While starting engine check operation of choke or primer for looseness and wear.

9. *Instruments.*

Oil pressure gauge
Ammeter
Fuel gauge
Temperature gauge
Voltmeter, tachometer, and air brake pressure gauge (if so equipped).

If the above instruments fail to indicate properly, stop the engine and investigate the cause and report it.

10. *Horns and windshield wipers.* Tactical situation permitting, test horn. Check wiper arms, blades and contact with windshield.

11. *Glass and rear vision mirrors.* Clean windshield and door glass. Air mirror properly and check for damage to frames or brackets.

12. *Lamps and reflectors.* Tactical situation permitting; check operation of all switches and see that all lamps light. See that lamps and reflectors are secure and that lenses are clean and not broken.

13. *Wheel and flange nuts.* See that they are all present and secure.

14. *Tires and/or tracks.* All tires should be gaged and properly inflated and spares properly secured in their carriers.

15. *Springs and suspensions.* Check for abnormal sag, broken or shifted leaves, loose or missing rebound clips, eye/bolts, U-bolts, or shackles.
16. *Steering linkage.* Check Pitman arm and steering linkage for looseness and bent parts. Check gear box for security and leakage.
17. *Fenders and bumpers.* Check for looseness and damage.
18. *Towing connections.* Make sure that truck tractor fifth wheel, or pintle and lunette are in safe operating condition and that all locking devices are secure. Report any damage or deficiency.
19. *Body, load, and tarps.* Check body for damaged, loose, or missing parts. Inspect cargo for damage, shifting and proper distribution; tarpaulin for security, damage, and protection of load.
20. *Decontaminator.* Must be in good condition, securely mounted and fully charged.
21. *Tools and equipment.* See that tools and equipment belonging with the vehicle are present, serviceable, and properly mounted or stowed.
22. *Engine operation.* Normal operating temperature may be assumed when engine will idle with the choke fully released and the oil pressure gauge indicated near normal operating pressure, accelerate engine and note any unusual noises or operating characteristics which would indicate trouble.
23. *Driver's permit and Form 26.* Do not operate vehicle without operator's permit. Accident report Form 26 must be present in vehicle and legible.

24. *Amphibian services (land operation).* Perform operation 1 to 23 which apply to amphibians. Amphibian services (water operation). Preventive maintenance procedures for water operation should be obtained from vehicle maintenance manual.

Note: Before starting engine, open the ventilator or hatches and be sure that all hull compartments are clear of fuel drippings and fumes.

25. *During operation check.* The during operation check should be started immediately, as soon as the vehicle is put in motion.

94. PREVENTIVE MAINTENANCE SERVICE DURING OPERATION. Many of the defects, which a vehicle may have, can be detected only while the vehicle is actually in operation. You may save an accident or prevent serious damage to your vehicle by keeping constantly alert for signs of any such defect. This is the purpose of "During Operation Service." When you start out in the morning you can test the steering gear, brakes, and clutch; then you will be fairly confident that they will not give you trouble during the day's operation. During the entire march you may avoid trouble by listening carefully to the sound of your motor, by observing your instruments, and by noting in general how the vehicle responds to your will.

26. Steering brakes
27. Foot and hand brakes
28. Clutch
29. Transmission
30. Transfer
31. Engine and controls

32. Instruments
33. Steering gear
34. Running gear
35. Body and trailer
36. Guns: mountings, and elevating, transversing, gyro and firing controls
37. Amphibian services

26. *Steering brakes.* Full track vehicles only. (See Manufacturer's Manual.)
27. *Foot and hand brakes.* Foot brakes should operate smoothly without pulling the vehicle to one side, leaving a reserve of pedal travel available. When the vehicle is stopped on an incline the hand brake should keep it from rolling. When in motion the hand brake should be fully released.
28. *Clutch.* Clutch should not chatter or squeal during engagement or slip when fully engaged. Pedal should have free travel before it begins to disengage clutch.
29. *Transmission.* Gears should shift smoothly, operate quietly, not creep out of mesh during operation.
30. *Transfer.* Check this unit same as transmission.
31. *Engine and controls.* Report any misfiring, unusual noise, tendency to stall or overheat, unusual exhaust smoke or lack of usual power. Report if engine doesn't respond to controls or if controls appear to be out of adjustment
32. *Instruments.* Observe the reading of all instruments frequently during operation to see whether they are indicating properly.

33. *Steering gear.* There should be no looseness, binding, pulling to one side, wandering, shimmy, or unusual noise.

34. *Running gear.* Listen for unusual noises from wheels, axles or suspension parts that would indicate looseness or damage.

35. *Body and trailer.* The driver should be on the alert for shifting load, sagging or tilting of the vehicle, loose tarpaulin or curtains or unusual weaving of towed load.

36. *Guns: Mountings and elevating, traversing, gyro, and firing controls.* During operation before actual combat, check gun controls and mechanisms for proper response.

37. *Amphibian services* (land operation). Perform operations 26 to 36 which apply to amphibians. Amphibian services (water operation). Preventive maintenance procedures, for water operation should be obtained from vehicle maintenance manual.

95. PREVENTIVE MAINTENANCE SERVICE AT HALT. At each halt of sufficient duration you have an opportunity to observe certain items which may not have been evident while you were running. These are listed under At Halt Service.

38. Fuel, oil and water
39. Temperatures: hubs, brake drums, transfer, transmission and axles
40. Axle and transfer vents
41. Propeller shafts
42. Strings and suspensions
43. Steering linkage
44. Wheel and flange nuts
45. Tires and/or tracks
46. Leaks; general
47. Accessories and belts
48. Air cleaners
49. Fenders and bumpers
50. Towing connections
51. Body, load and tarps
52. Appearance and glass
53. Amphibian services

38. *Fuel, oil, and water.* Check amount. See that it is adequate to operate the vehicle safely until the next scheduled halt.

39. *Temperature.* Hubs, brake drums, transfer, transmission and axles. Cautiously touch each brake drum and wheel hub. If drum is too hot, shoes may be dragging, if too cold brake may not be functioning. If hub is too hot, bearings may be improperly lubricated or adjusted. Check transfer, transmission and driving axles for overheating or oil leaks.

40. *Axle and transfer vents.* See that vents are not clogged or damaged.
41. *Propeller shafts.* Check for looseness, damage, and oil leaks.
42. *Springs and suspensions.* Check for broken leaves, loose clips, U-bolts, eye-bolts, shackles, shock absorber linkage, and torque rods. On bogie suspensions check arms, links, pins, wheels, for looseness and damage.
43. *Steering linkage.* Examine steering mechanism, for damage or looseness and investigate any irregularities noted during operation.
44. *Wheel and flange nuts.* See that all wheel mounting, rim nuts, and axle flange nuts are present and secure.
45. *Tires and/or tracks.* Check for flats and damage and remove stones from treads and between duals.
46. *Leaks, general.* Check under hood and beneath vehicle for indication of oil, water, fuel, gear lubricants, or brake fluid leaks.
47. *Accessories and belts.* Check to see that fan and generator are secure, that water pump does not leak, that belts are adjusted correctly and are not frayed.
48. *Air Cleaners.* See that air cleaners and breather caps are in condition to deliver clean air.
49. *Fenders and bumpers.* Check these items for looseness and damage.
50. *Towing connections.* Check all locking devices for security. Check for frayed or broken cables, and damaged or missing parts.

51. *Body, loads and tarpaulins.* Inspect vehicle and trailed loads for shifting; also check tarpaulins for security and damage.

52. *Appearance and glass.* Clean windshield, door, and window glass, rear-vision mirror, and lamp lenses and inspect for damage.

53. *Amphibian service (land operation).* Perform services 38 to 52 which apply to amphibians. Amphibian services (water operation). (See vehicle maintenance manual.)

96. PREVENTIVE MAINTENANCE SERVICE AFTER OPERATION. You are a soldier and a member of an army, and an army must be able to act at any time, on a moment's notice. Therefore, when your vehicle comes in, you must make sure that it will be ready to roll whenever necessary. This is the purpose of preventive maintenance service, which you perform after each tour of operation. (See TM 9–2810, Motor Vehicle Inspection and Preventive Maintenance Services). It includes—

54. Fuel, oil, and water
55. Engine operation
56. Instruments
57. Horn and W/S wipers
58. Glass and RV mirrors
59. Lamps and reflectors
60. Fire extinguishers
61. Decontaminator
62. *Battery and voltmeter

*Those items marked by an asterisk (*) require additional weekly services.

63. *Accessories and belts
64. *Electrical wiring
65. *Air cleaners and breather caps
66. *Fuel filters
67. Engine controls
68. *Tires and/or tracks
69. *Springs and suspensions
70. Steering linkage
71. Propeller shafts, center bearing and vent
72. *Axle and transfer vents
73. Leaks: general
74. Gear oil levels
75. *Air brake tanks
76. Fenders and bumpers
77. *Towing connections
78. Body, load and tarps
79. Armor and front roller
80. Vision devices
81. Turret, and gun: mountings, and elevating, gyro, transversing, and firing controls
82. *Tighten; wheel, rim, axle drive flange and spring U-bolt nuts.
83. *Lubricate as needed
84. *Clean engine and vehicle
85. *Tools and equipment
86. *Amphibian services

54. *Fuel, oil, and water.* Check levels and replenish as necessary. Also replenish auxiliary supply. If unusual amount of any item is needed, check cause and report condition.

55. *Engine operation.* Check engine at idle speed for smoothness of operation. Accelerate and decelerate engine and note any miss, backfire, or unusual noise that might indicate worn parts, loose mountings, incorrect fuel mixture, or faulty ignition.

56. *Instruments.* Check all instruments to see that they are securely mounted, properly connected and undamaged. Report any case where an instrument does not function properly.

57. *Horns and windshield wipers.* Tactical situation permitting, check horn. Check wiper arms, blades, and contact with windshield.

58. *Glass and rear vision mirrors.* Clean rear vision mirrors, windshield, and door glass. Aim mirrors properly and check for damaged frames or brackets.

59. *Lamps and reflectors.* Tactical situation permitting check operation of all switches and see that all lamps light. See that lamps and reflectors are secure and that lenses are clean and not broken.

60. *Fire extinguisher.* Check for tight mounting, corroded nozzles, closed valves and full charge. If the extinguisher has been used, report it for refill or replacement.

61. *Decontaminator.* Must be in good condition, securely mounted and fully charged.

62. **Battery and voltmeter.* See that battery is clean, secure and not leaking and that electrolyte is at proper level. Cables and vent caps should be clean and secure. Voltmeter should register at least nominal battery rating.

63. **Accessories and belts.* Check carburetor, generator, regulator, starting motor, fan, shroud, fuel and waterpumps for leaks or failure, check belts for adjustment and wear.

64. **Electrical wiring.* See that all ignition wiring is securely connected, clean and undamaged.

65. **Air cleaners and breather caps.* See that air cleaners and breather caps are clean, oil free of dirt, and up to proper level.

66. **Fuel filter.* Check fuel filter for leaks.

67. *Engine controls.* Check control linkage for wear and proper operation.

68. **Tires and/or tracks.* Remove all nails, glass, or stones from tires or between duals. Check tires for cuts, tread wear, position of valve stems. Replace missing valve caps.

69. **Springs and suspensions.* Check springs for abnormal sag, broken or shifted leaves, loose or missing, rebound clips, eyebolts, U-bolts, or shackles. Also check torque rods.

70. *Steering linkage.* Check steering linkage for bent, loose or missing parts. Also check steering knuckle and gear-box for leaks.

71. *Propeller shafts and centerbearing.* Check for loose mountings and worn parts, lubricant leaks or clogged vents.

72. **Axle and transfer vents.* See that breather vents are present and free from mud.

73. *Leaks, general.* Check engine and under vehicle for leaks. Trace any fuel, oil, water or brake fluid leaks,

and correct or report them.

74. *Gear oil levels.* Check axle housing and gear-boxes for lubricant level. Should be level with plug hole when hot, or ½ inch below when cold.

75. **Air brake tanks.* Drain tanks, check air line connections for leaks.

76. *Fenders and bumpers.* See that fenders and bumpers are secure and in good condition.

77. **Towing connections.* Check tow hooks, truck tractor fifth wheel, or pintle and lunette for looseness and damage. See that safety chains, brake and electrical connections are properly secured to both vehicle and trailer.

78. *Body, load and tarpaulins.* Check body for damage, loose or missing parts. Check load for even distribution and tarpaulins for security, damage, and protection of load against the elements.

79. *Front roller or winch.* See that roller is lubricated, surface clean and protected from rust.

80. *Vision devices.*

81. Turret and gun, mounting, elevating and traversing, gyro, and firing controls. (See TM 9–2810.)

82. *Tighten wheel, rims, axle drive flange and spring U-bolt nuts. Check tightness of wheel mounting, rim, axle flange and spring U-bolt nuts. See that inner duals are tight by loosening the outer nuts and tightening inner nuts, retighten outer nuts securely. Report any damage or missing parts.

83. *Lubricate as needed.* Inspect spring shackles and steering linkage, lubricate if needed.

84. **Clean engine and vehicle.* Clean inside of cab and body, remove dirt or grease from engine.

85. **Tools and equipment.* See that all tools and equipment assigned to the vehicle are present and in usable condition, properly mounted or packed.

86. **Amphibian services.* Land operation—Perform 54 to 85 which apply to amphibians. Water operation—preventive maintenance procedures should be obtained from vehicle maintenance manual.

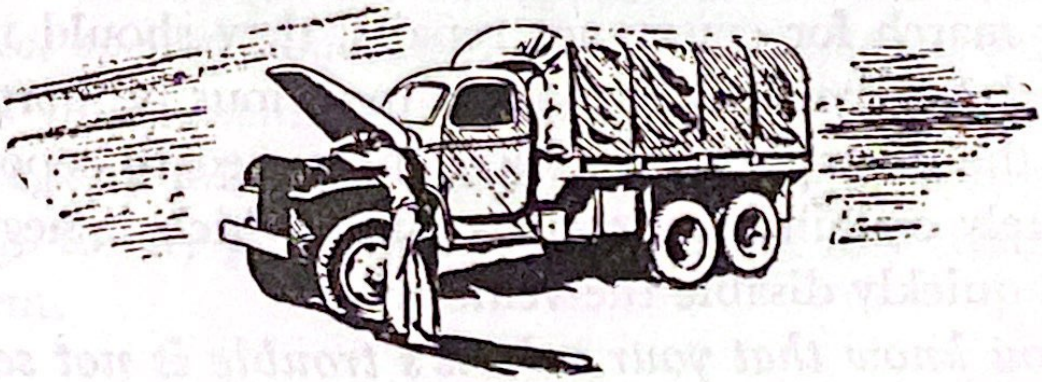
97. WEEKLY SERVICE. To keep your vehicle operating smoothly, you will need to check, tighten, and service certain important units approximately once a week. This is also the time for cleaning the vehicle inside and out, and doing any other work necessary to give it a good military appearance. This weekly service therefore includes those items marked with an asterisk in paragraph 96.

98. LUBRICATION. The first essential to the operation of a military motor vehicle is that it be in readiness to operate at all times, and at a moment's notice, and that it be in such mechanical condition that it will get through to its destination with the cargo intact. Consequently, your responsibility as a driver does not end in the proficient operation of your vehicle. You must also know how to keep that vehicle in such condition that it is always ready to go. Lubrication is one of the important means of maintaining the vehicle in this condition. The grease gun and oil can furnished with the vehicle

are intended for use by the driver. It is your responsibility to lubricate the vehicle at the proper time, with the proper lubricants in accordance with lubrication instructions, and not to rely on second echelon maintenance for this service. By doing your job well, maintenance and repairs will be kept to a minimum and your vehicle prepared to complete its assignment.

Different makes and models of vehicles requires different kinds of lubrication and at different points. You have a maintenance manual and War Department Lubrication Orders for the vehicle to which you are assigned and the details for proper lubrication of that vehicle are contained in those manuals and orders. You should study these details carefully.

They will be given in the form of a chart. Find the chart that applies to your vehicle, and learn to read it.



CHAPTER 8

IF SOMETHING GOES WRONG

99. SOME TROUBLE MAY ARISE. If you carefully carry out the preventive maintenance services outlined in this manual, and if you drive carefully and safely, nothing whatsoever is likely to go wrong. However, in spite of all that you can do, something beyond your control may cause mechanical trouble or accident.

100. WHAT TO DO. a. How serious is the trouble? When you were trained in preventive maintenance, you were instructed to note certain defects when they occur. This means that faults which are not serious enough to injure the vehicle immediately, should be corrected as soon as you have the opportunity—probably at the end of the day's or night's operation. Although defects noted are not important enough to justify dropping out of a motor march for emergency repairs, they should not be ignored, for they may soon grow to serious proportions.

On the other hand, you were instructed to report immediately certain more serious faults which if neglected would quickly disable the vehicle.

If you know that your vehicle's trouble is not serious, NOTE IT; if you know that it is serious, or if you are in doubt, REPORT IMMEDIATELY.

b. How should you report? Report promptly any trouble to your squad or section leader, or to the nearest

officer or noncommissioned officer of your march unit if he is available. If not, you may report a serious defect to him by telephone, messenger, or any other practicable manner.

If it is impracticable for you to make a report, use your best judgment as how you should act, remembering those two cardinal principles, "Keep 'em rolling" and "Get there."

101. IF YOU ARE IN A MOTOR VEHICLE ACCIDENT. Suppose that in spite of your care, you are involved in a motor vehicle accident. Then what should you do? There are some steps you can take to protect your own interests and those of the Government, as well as aiding any others who may be involved.

102. WHAT IS AN ACCIDENT? To be sure that there is no mistake as to what an accident is, let's define it. An accident is a "mishap resulting in injury to a person or animal, or damage to a thing." *Note that the definition does not specify how much damage or injury is required to call it an accident.* Great or trivial as the damage may be, any mishap which causes the slightest injury or damage to any person, or any animal, or any thing is an accident.

103. ALWAYS STOP AND INVESTIGATE. No matter how slight the accident, always stop and investigate it. Under the general policy of the Army, you should cooperate with the civil law, which in most places requires you to

stop, whether the accident be a serious crash or the slightest scratching of a fender. The only exception to this rule might be in actual combat, or in case of evident military necessity, when you are operating under definite orders not to stop.

104. TAKE PRECAUTION AGAINST FURTHER ACCIDENT. After a motor vehicle accident, the vehicle or vehicles involved are frequently in dangerous locations and often a crowd collects in the road. Many times another accident, perhaps even more serious than the first, occurs when another vehicle crashes into the wreck or persons in a crowd.

To prevent additional accidents, damage, or injury, the first thing to do is to be sure guards, flares or lights (except in a blackout), or flags are posted to warn all other traffic to proceed with caution. If civil or military police are present they will probably direct traffic. If troops are present, ask some of them to act as guards. If neither are present, ask any civilian.

105. AID TO INJURED. Give immediate first aid to any who are injured. If more than one person is injured, it may be best to get assistance in giving first aid, and to supervise the work of your assistants so that all get prompt and proper attention.

106. PRECAUTIONS AGAINST FIRE. In motor vehicle accidents there is the danger of spilled gasoline. Gaso-

line exposed to the air creates a highly inflammable vapor which means great danger of fire. Avoid this danger by cutting off engines and stopping all smoking whenever there is spilled gasoline or whenever vehicles are badly wrecked. Permit no open flame within 25 feet of the wreck.

107. SUMMON THE PROPER AUTHORITIES. a. Doctor or ambulance. If anyone appears to be injured, summon the nearest doctor or ambulance, military or civil, whichever can be secured in the least time. Military personnel having only moderate injuries should be sent to a military hospital when practicable.

b. Fire department. If fire breaks out and you cannot stop it with a fire extinguisher or with sand, send for the fire department.

c. Civil police. Most State laws require that police be summoned in cases of motor vehicle accidents. The Army cooperates with civil authorities in such matters. If civil police are not on hand, send for them.

d. Military police. If you are in an area controlled by military police and think they are needed for traffic control or to handle crowds, send for military police, or ask the highest ranking person present to do it.

108. USING SEPARATE MESSENGERS. When there are enough people available, you may be able to get needed aid more quickly by sending different messengers to summon doctors, firemen, and police, as may be needed.

109. REPORTING BY TELEPHONE. Whenever practicable, report the accident to your commanding officer by telephone, just as soon as you have finished your urgent duties on the scene of the accident. If an assistant driver is present, you can probably have him phone while you are attending to other matters. In an emergency, you can usually get permission to use some nearby telephone, without charge. Your unit headquarters will accept a collect toll charge if you must report an accident by long-distance phone, or will reimburse you for the cost of a local call.

110. MAKING OUT AN ACCIDENT REPORT if you are involved in a crash is necessary for your protection, as well as the Government's. Naturally, if the accident was not your fault, you don't want to be blamed. Even if it *was* your fault, you don't want somebody else to exaggerate it later because you didn't report the facts and the witnesses' names when the crash occurred. To help you report this vital information, the Army has furnished you with Standard Form No. 26 (Driver's Report, Accident, Motor Transportation).

This form explains itself well enough that if you will study the sample report filled out in the appendix, and remember the following tips, you aren't likely to go wrong.

a. Keep your head. Give first aid to those who need it; take precautions against fire and further accident; and then get your information for the report from the people who could help you before they have left.

b. Keep your temper. Be courteous to people when you ask for information. Don't bother to argue with the other driver; it won't get you anywhere. If the fault was his, an investigating officer will decide that later.

c. Secure hard-to-get facts first. (1) The first facts to get are those which you get by questioning other people, because these people may not wait for you. For example, glancing at your report form, you will see that you need to get names and addresses of all other people involved, and of all witnesses. Don't delay. Get this information while you can.

(2) Next, get the facts that you can secure only by studying the scene of the accident. Even though most of the other people have gone, you should not leave until you have carefully noted the condition of the road, the position of the vehicles, the amount of damage, and any other facts that you can't get after you have left the scene of the accident.

(3) Fill in items such as your own name, the make of your vehicle, etc. (which you know or can easily get) after you have done everything else—perhaps even after you have left the scene of the crash.

d. Be exact. Be sure that your report gives a clear idea of what actually happened. Your diagram of the accident (question 16) should show *exactly* where the vehicles were before and after the crash, *exactly* what obstacles blocked either driver's view of line of travel. Every name should be spelled *exactly* right, every street address or pole described *exactly* by number. State *exactly* what damage you can see (as "crushed right rear

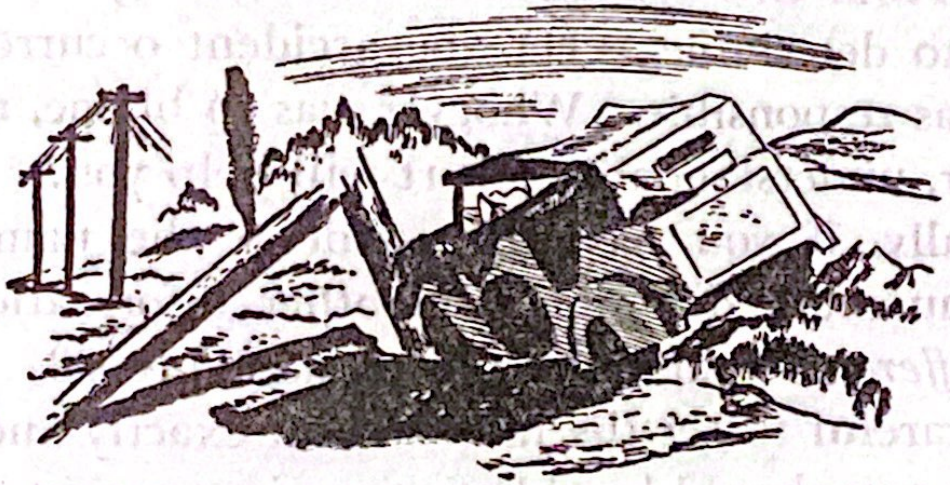
wheel, bent or broken axle, crumpled fender") but do not guess at damages that you cannot see, and do not guess at the value of damaged property.

If somebody claims that you have damaged property of his, but you cannot see the damage, note only that he "claims bent frame" or whatever it is. Do the same way with injuries—report cuts, burns, broken bones, etc., of which you are certain, and note only that a person *claims* an injury when you have no way of knowing the truth—such as a strained back or internal injuries. If you cannot get the exact information on some item, write "unknown," to show that you didn't overlook it.

e. Use more paper if necessary. Don't think that the small amount of space on this form should limit you. If you need more space, use a separate sheet of paper to answer a question; write "See attached" in the question on your report, and attach the extra sheets firmly to the report form.

f. Check each item. Remember that you are an agent of the United States Government. As you fill in each item of the report, check it against what you can see about you and against your own common sense. When the other driver gives you his name, see that it is the same as the name on his driver's permit. If not, find out why. If somebody gives you an address that you think is incorrect or does not exist, question him further, as tactfully as you can. If you have reason to doubt any information which you write on your report, be sure to call attention to your doubts by a note.

g. Check the entire report. After you have finished, look over the entire report and make sure that it is complete and accurate. If the investigating officer can secure a good picture of the accident from the information you have given him, you can expect a fair deal from him. Place yourself in his position. Do all your answers make sense? Do they all say what you meant to say? If so, sign your report and turn it over to the commanding officer or to the officer or noncommissioned officer in charge, without unnecessary delay.



APPENDIX

AN ACCIDENT REPORT, PROPERLY FILLED OUT

The accident report, Standard Form 26 (Driver's Report—Accident, Motor Transportation), which has been reproduced on the following pages, shows you how one driver who was unluckily involved in an accident filled out his report form.

Notice that he has done a good job. He has written clearly, has supplied all information necessary to understand WHO was in the accident, WHAT happened, WHEN and WHERE it happened, and HOW it happened. From this report, the investigating officer will be able to determine WHY the accident occurred, and WHO was responsible. Whoever was to blame, turning in a clear, understandable report will help you.

Naturally, if you have an accident, the names, addresses, numbers, diagrams, and other information will be all *different* from those shown in figure 38. But if you are careful to get the information exactly and write it clearly, you should be able to turn in a report equally as good as this.

And, by the way—is there an accident report in your vehicle *now?*

Standard Form No. 26
Approved by the President
June 10, 1927

DRIVER'S REPORT—ACCIDENT
MOTOR TRANSPORTATION

INSTRUCTIONS TO DRIVERS

In case of injury to person or damage to property:

A. Stop car and render such assistance as may be needed.
B. Fill out this form, ON THE SPOT, so far as possible.
C. Deliver this report promptly to your immediate superior.

Failure to observe these instructions will result in disciplinary action.

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1. Name of Government driver: Pvt. 1 Cl. Benjamin Brown # 000000
2. Stationed at 725 Q.M. Bn. Fort Dix, N.J.
3. Make and type of Government vehicle G.M.C. 2½ ton Cargo - 6x6
4. Service number W 492244 - Sen.
5. Name and address of owner of other vehicle (or owner of property damaged) R.S. Sommers 101 West 85th St., Bordentown, N.J.
6. Name and address of driver of other vehicle Deane Sommers, 101 W. 85th St. Bordentown, N.J.
7. License of other vehicle: State N.J. - 1944
   No. L.Z. 628
8. Place of accident: City Trenton, N.J.
   Street 26th Street

10—1810

9. Date of accident 8 May, 19 44. Hour 1213 M.

10. Names and addresses of persons injured; nature of injuries:

R.S. Sommers - Cut on forehead

R.A. Waters - Claims internal injury

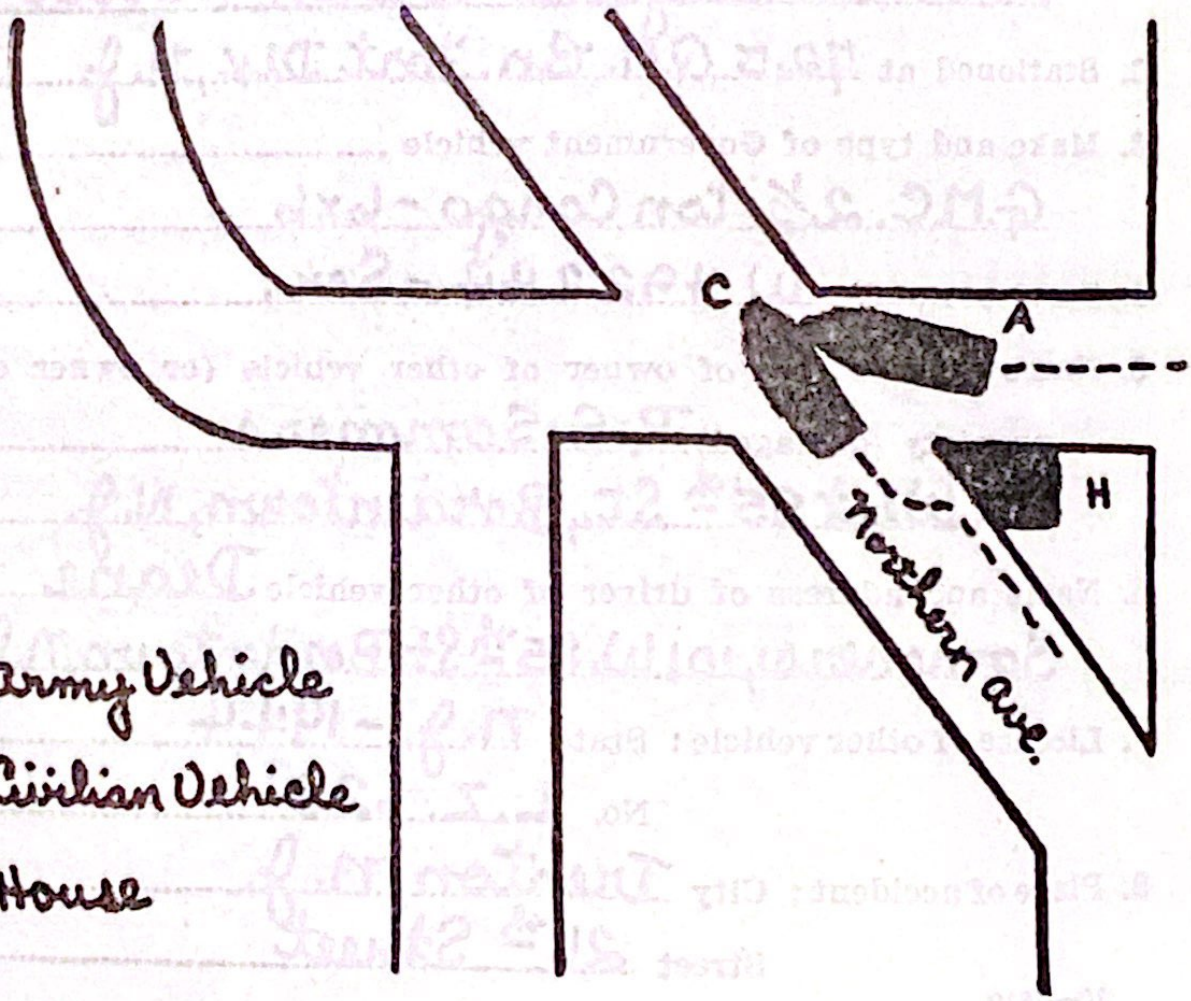
Deane Sommers - Claims ankle sprained

all of 101 West 8th St. Bordentown, N.J.

11. Describe damage to Government vehicle

None

12. Describe damage to privately owned vehicle, or other property: Right running board, fender and door smashed

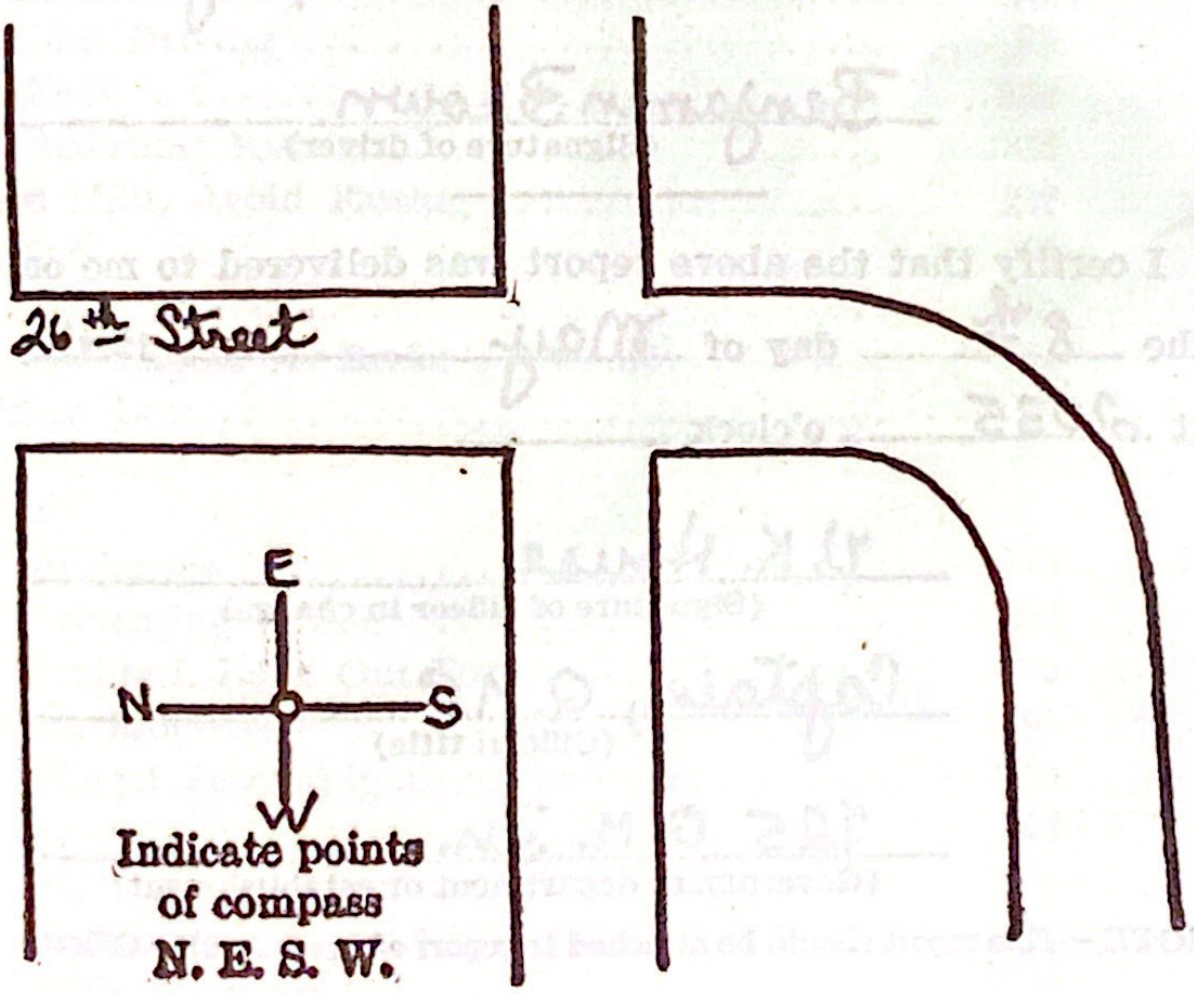


13. What signal was given by each driver prior to accident?
I sounded horn 50 ft. from intersection. Did not hear or see any signal from other vehicle.

14. State condition of light, weather, and roadway: Dusk, daylight. Visibility good. Weather clear. Road 4 Lane Concrete, dry and level.

15. Explain how accident happened: Car came out of intersection on my left. I tried to turn to right to avoid him but could not. Could not see account of house.

16. Label streets and indicate measurements; show the position of each vehicle at the time of the accident and show by dotted lines the course of each vehicle just before and just after the collision.



17. Was an investigation made by a policeman (civil or military)? Yes If so, state

Name Peter Martin No. —

Precinct or station N.J. State Police

18. Names and addresses of persons other than driver in Government car:

Pvt 1 cl. E. D. Jones 5R122580

725 Q.M. Bn. Fort Dix, N.J.

19. Names and addresses of other witnesses:

Raymond Bodine, Prince St, Bordentown, N.J.

Frank T. Mayer, 333 S. State St.

Trenton, N.J.

Benjamin Brown

(Signature of driver)

I certify that the above report was delivered to me on the 8th day of May, 1944, at 2035 o'clock

V. K. House

(Signature of officer in charge)

Captain, Q.M.C.

(Official title)

725 Q.M. Bn.

(Government department or establishment)

NOTE.—This report should be attached to report of Investigating Officer.

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DRIVER'S CERTIFICATE

....., 19....

SUBJECT: Driver's Manual.

TO: The Motor Transport Officer.

1. I acknowledge receipt of one Driver's Manual, covering the operation and maintenance of Government vehicles.

2. a. I have carefully read and understand this Driver's Manual.

b. I will follow its instructions and advice to the best of my ability.

c. I will keep the Manual with me for information and ready reference whenever I am driving.

.....
(Signature & Grade)

.....
(Organization)

NOTE—When you receive this copy of the Driver's Manual, read it carefully. Ask your non-commissioned officers about anything which is not clear. Then tear out this card, sign it, and give it to your first sergeant or truck-master.

Cut along this line

Cut along this line

KEEP YOUR ACCIDENT REPORT AND OPERATOR'S PERMIT IN THIS POCKET